J.B. TYRRELL: EXPLORER AND ADVENTURER

THE GEOLOGICAL SURVEY YEARS
1881 – 1898

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THE GEOLOGICAL SURVEY YEARS
1881 – 1898

by Katharine Martyn

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Cover: J.B. Tyrrell. *Map of Doobaunt and Kazan Rivers and northwest coast of Hudson Bay* (Ottawa, 1896). Inset photograph of J.B. Tyrrell, November 1886, Red Deer, Alberta.

Frontispiece: Running rapids on the Dubawnt River, August 3, 1893.

FOREWORD

When J.B. Tyrrell died, on August 26, 1957 at the age of 98, the *Globe & Mail* obituary hailed him as the pioneer explorer of Canada's Barren Lands and a world-famed geologist. The emphasis, however, of most of his memorial notices was on his career as a mining engineer and highly successful businessman. His achievements as a palaeontologist and historian, while mentioned, were not as prominently featured, nor as well understood, because he was able to fit several careers into his long and active life. In 1883, when Tyrrell went on his first Geological Survey expedition, the internal combustion engine had not been invented and the modern motor-car was unknown. In 1957 he shared the front page of the *Globe* with a photograph of the Edsel, then about to be launched. This exhibition and catalogue are the first to focus on the early career of J.B. Tyrrell using the wonderfully evocative diaries, notebooks, letters, maps, and photographs contained in the Tyrrell Collection at the Thomas Fisher Rare Book Library.

J.B. Tyrrell. *Map of Doobaunt and Kazan Rivers and northwest coast of Hudson Bay* (Ottawa, 1896). The shading indicates Tyrrell's routes across the Barren Lands in 1893 and 1894.

The collection was bequeathed to the University of Toronto Library in 1957. The manuscript material alone occupies 146 document boxes, but there is much more. Tyrrell was also a collector and the bequest included his father's and brother's papers and other historical documents of great value (the most notable of which was the holograph of David Thompson's *Narrative*). There was also a large collection of books, concentrating on Canadian exploration and history, but by no means confined to those subjects. The two early nineteenth century globes, which now grace the Reading Room of the Fisher Library, also came from his estate.

Katharine Martyn has utilized, in a most imaginative way, one of the primary Canadian research resources of the University of Toronto. This exhibition and catalogue will surely stimulate further research into this exciting and important period of Canadian history and the part played in it by this very significant figure. In April 1893 J.B. Tyrrell ordered a new Hawkeye camera which used the recently invented rolls of film. With it he created the many photographic images of the Barren Lands we are privileged to see one hundred years later, and we still have the camera. He carefully preserved this record for posterity and would be pleased to know that it is being displayed on the centenary of one of his great explorations and adventures.

Richard Landon
February 1993

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EARLY YEARS: 1858-1883

Joseph Burr Tyrrell was born in 1858 in the small village of Weston outside Toronto, the third child of William Tyrrell and Elizabeth Burr Tyrrell. His father, William Tyrrell (1816-1904), had emigrated to Canada from Ireland at the age of twenty and by the time of Joseph's birth was well established as a successful contractor and builder in the Weston region, a Justice of the Peace, and a leader in county and municipal politics. Later he was to become Reeve of Weston for several years. Joseph's mother, Elizabeth Burr (1825-1906), the daughter of Rowland Burr of Burrwick (now Woodbridge), had married William in 1845.A staunch Methodist whose deeply felt religous convictions had a strong influence on her children, she devoted herself to creating a happy and harmonious home for her large and close-knit family whose members continued to rely on and help each other throughout their lives.

The Tyrrell family home where young Joe grew up still stands in what is now part of Metropolitan Toronto. Built by his father in 1864, it is a substantial brick house, which was surrounded in Joe's childhood by the farms and open countryside that separated the small village of Weston from the city of Toronto to the south east. Joe first attended the Weston Grammar School, but in 1874 he was enrolled in Upper Canada College from which he graduated in 1876. From 1876 to 1880 he attended the University of Toronto where he specialized as much as the rigid curriculum of that time would allow in the study of natural science, receiving encouragement from Professors Ramsay Wright and Edward Chapman. At Ramsay Wright's suggestion, and using money from scholarships he had won in his first two years at University, Tyrrell bought himself a microscope in the summer of 1878 and began a serious study of the plants and insects collected in the area around his home. He continued to win scholarships in natural science but missed standing first in his last year. Recalling his disappointment, Tyrrell later wrote, "some people told me if I had minded my business instead of wandering in the outrageous fields of Science and German, I might have got the gold medal" *(Autobiography).*

After his graduation from University in the spring of 1880, Tyrrell spent a year as an articled clerk in a Toronto law firm, in deference to the wishes of his father who had decided on a legal career for his son. As Tyrrell put it in his *Autobiography:* "I can't say I was consumed with interest, but since it was

my duty to be a lawyer, that was sufficient." In the spring of 1881, however, he was diagnosed as having a weakness in his lungs, possibly a trace of tuberculosis, and was advised by his doctor to seek an outdoor life.

> *What was I to do? ... money was not available to provide me with a farm. I could not set myself to the study of a new subject, such as land surveying, which would have given me the chance of outdoor life. However I was somewhat familiar with the work of the Geological Survey of Canada, as at the instance of Professor Chapman, I had read some of the reports and had a good ground-work in the science, so my hopes turned in that direction ... Through the influence of my Father, who was a friend of Sir John A. Macdonald and of Col. John Stoughton Dennis, a Weston man in the Civil Service, I was appointed a third-class clerk in the Geological Survey at Ottawa — at a salary of Five Hundred Dollars a year. My fortune was made: I had studied Latin and Greek, German and Zoology, Botany and Law, and here at last I was a Geologist.* (Autobiography)

When Tyrrell joined the Survey in the fall of 1881 it had just moved from Montreal to new quarters on Sussex St. in Ottawa and its large museum collections were still in crates awaiting unpacking and organization. Tyrrell was to spend the next year and a half assisting the Survey's palaeontologist, J.F. Whiteaves, in unpacking and identifying thousands of rocks and fossils — a period which he later described as a "practical post-graduate course in Geology and Mineralogy." Although he had studied relatively little geology or palaeontology in University, Tyrrell found the work congenial.

> *To my surprise, I found that my knowledge of scientific theory and practical observation was equal to that of my associate juniors in the Survey and in some instances even better. My whole formal education had been shoved aside by my informal inquiry. Interest aroused at home by the precept and example of my Father, enlarged by excursions in the woods and by the river, and again by the teaching of Professor Chapman, had directed my reading. The plain truth was that I had studied Natural Science for amusement, and naturally had done rather well at it.* (Autobiography)

Despite his new profession as a geologist, Tyrrell was not ready to give up his avid study of botany and entomology and soon resumed the work he had begun as an undergraduate at the University of Toronto. In February 1882 he read a paper to the Ottawa Field Naturalists Club on "Some Canadian *Ectoparasitic Sarcoptidia*" which was later published in the club's *Transactions* — the first of the scores of scholarly articles in a wide variety of fields which Tyrrell was to write and publish during his lifetime. In the fall of 1882 he was instrumental in founding the Ottawa Microscopical Society

and at its December meeting delivered a lecture illustrated with slides entitled "Insect Parasites". The Society became quite a prestigious organization over the next few years, its meetings being frequently described in the local newspapers, and Tyrrell played an active role in its proceedings. He spent much of his leisure time during his early years with the Survey in collecting mites and spiders for study under his microscope and he published several more papers on entomological subjects. Although he later turned to the study of geology and allied subjects, Tyrrell was to retain his keen interest in both botany and entomology throughout the rest of his life.

Tyrrell's hard work and obvious aptitude for geology did not go unnoticed at the Survey. First hired by Dr. Selwyn, Director of the Survey, "on probation", in a temporary position, he was given a permanent position by the end of 1881 and promised a rise in salary to $700 a year. His pleas to be sent out on a field survey were not answered, however, until the spring of 1883 when he was appointed assistant to Dr. George Mercer Dawson. Tyrrell accompanied Dawson on a five month expedition through the foothills and the Rocky Mountains of Alberta and British Columbia. Here was the first realization of his cherished dream of pursuing an adventurous life in the wilderness, the arduous and lonely life of a geologist and explorer.

It was not an easy apprenticeship that Tyrrell served in 1883. The expedition leader, G.M. Dawson, was already recognized as an outstanding member of the Survey, renowned for his ability to endure hardship, despite his small physical size and apparently fragile health. In the 1870s Dawson had carried out remarkably comprehensive surveys of the Queen Charlotte Islands and portions of British Columbia and the prairies. His reports for the Survey reflected his wide-ranging interests and included a wealth of observations on all aspects of natural history as well as on historical and ethnographical material — as many of Tyrrell's reports were to do in the future. Dawson demanded no less from the men on his expeditions than he did from himself, and in the summer and fall months of 1883 he worked his assistant hard. While the rest of the party travelled on horseback, Dawson assigned Tyrrell to make pace surveys, covering many of the mountain passes on foot, noting every detail of rock formation, and collecting numerous plant and animal specimens in addition to the fossils and rocks which were the primary business of a field geologist.

On his pace surveys Tyrrell would start out each morning an hour or more before the rest of the party. He would count his paces as he walked,

stopping to take bearings with a prismatic compass and to examine the rocks and note any interesting plants. At mid-day he would meet the party at a prearranged point for dinner and then continue his lonely way on foot through the afternoon, sometimes arriving at the night camp long after the tents were up and supper prepared. In the evenings he often worked late in his tent, pressing and identifying the plants he had collected during the day.

The distance covered by Dawson's 1883 expedition was impressive. Travelling by train as far west as the tracks then ran, the party reached the terminus of the railway at Maple Creek, Saskatchewan, in early June and headed across the plains with horses and wagons to Fort Macleod, taking turns each night to stand guard over the horses, as Dawson had been warned by the North-West Mounted Police at Maple Creek that there were many horse thieves at large on the still unsettled prairie. Reaching Fort Macleod unscathed, they rode on through the foothills and into the Rockies. Here, from July until September, they explored and surveyed the mountain passes of the Crows Nest, North and South Kootenay, Kicking Horse, and the Bow River. Several thick seams of good quality coal were located, including those on the site of what was later to become the coal mining town of Fernie, B.C. The party also reconnoitred the valley of the upper Columbia and the Kootenay Rivers in a preliminary survey, and explored the head waters of the North Fork of the Old Man River and the Devil's Head Valley north of the Bow River.

The summer was rigorous, especially for Tyrrell on his pace surveys. His hands swelled to "twice their normal size" from mosquito bites. He wrote in his journal that sun and windburn were "changing my colour and flattening my countenance". On the plains the heat was sometimes intense, although in the mountains the nights were piercingly cold. Even in July the party experienced snow. Once they camped too high for trees to yield the necessary tent poles and were forced to spend the night rolled in blankets in the snow.

It was no wonder that Tyrrell later wrote of the summer "I went out a boy and came back a man." Yet he appears to have thrived on the hard work and his endurance and enthusiasm matched that of his leader. In the journal Tyrrell kept during these months — a much more personal and expressive record than any he kept on subsequent expeditions — the descriptions of hardships and danger are matter of fact and the writer's keen interest in every aspect of the country through which he travelled is apparent. There

are many indications in this early journal of the way in which Tyrrell would conduct his own future expeditions and of how his interests and knowledge would become as wide-ranging as those of Dawson himself, including not only geology and palaeontology, but botany, zoology, history, ethnography, and photography.

DINOSAURS AND COAL: ALBERTA, 1884-1886

Tyrrell spent the next winter identifying and describing the plants and fossils collected on the previous summer's expedition, and preparing maps based on his surveys. "As I had no previous training in drawing maps, he [Dawson] bought me a copy of Chauvenet's *Spherical and Practical Astronomy* in two volumes, with the suggestion that I might find them useful. This kept me busy for most of the winter" *(Autobiography)*. Tyrrell's social life also began to expand during this winter. His younger brother, James, now also employed by the Geological Survey, was boarding with him in Ottawa and the two brothers attended many toboggan parties and dances at Rideau Hall. J.B. recalled: "One evening when I was going to a dance I put a 'pedometer' in my pocket ... Afterwards when going to bed, I found that I had danced twenty-one miles" *(Autobiography)*.

In the spring of 1884 James was reappointed to the survey of Lake of the Woods where he had spent the previous summer but J.B. was astonished to learn that Dr. Selwyn had placed him in sole charge of a party to explore a large district north of the Bow River in Alberta.

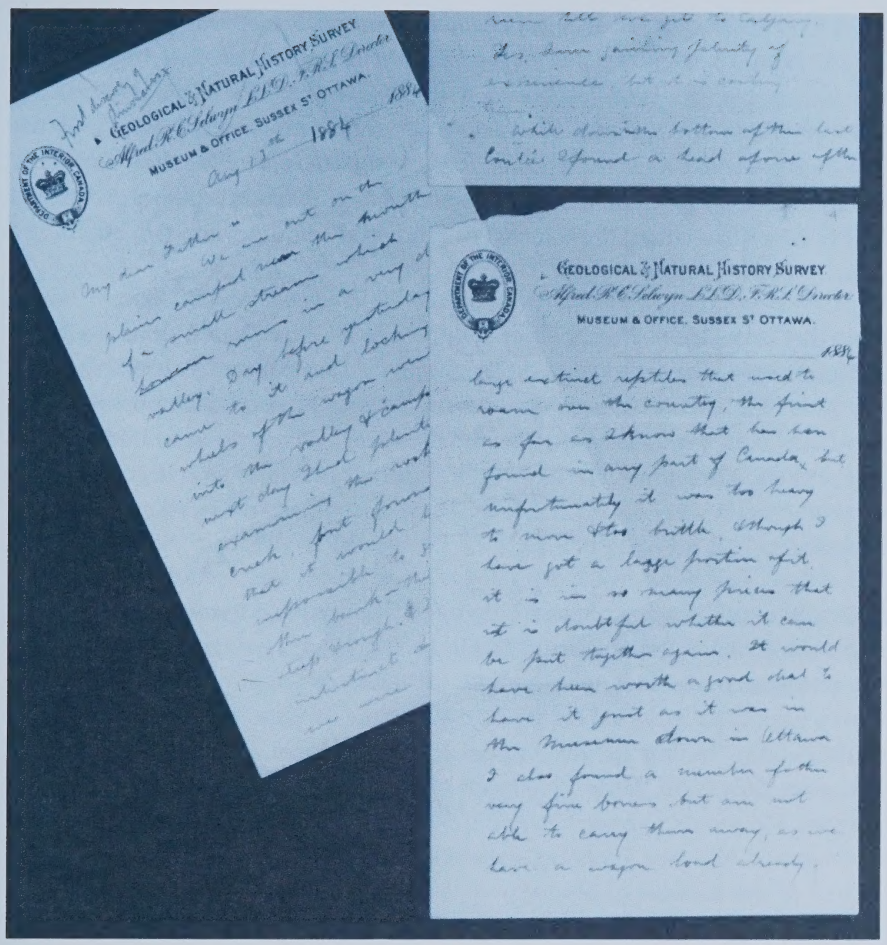
> *Dr. Dawson had assured the Director that I was competent to lead, and besides, no one else was available ... I marvelled at the ways of men — and Directors. For eighteen months I had been assured that no outdoor work was available for me. Then I had been allowed — probably with some misgiving — to serve six months afield with Dr. Dawson, and now I was to be trusted with the enormous responsibility of determining the geological features of a veritable kingdom, reporting the mineral deposits and their value, judging the quality of the timber and of the soil, collecting fossils, observing flora and fauna, fixing by scientific instruments elevations above sea level, latitude and longitude, buying horses, engaging men, keeping both in good condition and good temper while on difficult trails. I was given a letter of credit ... and some general instructions. Otherwise I was "on my own".* (Autobiography)

Tyrrell took the train to Calgary; purchased his horses and his outfit, which included a folding canvas canoe as well as a buckboard wagon; hired three local men, and set off at the beginning of June across the prairie, following the rough trail that led north to Edmonton.

> *... as we crossed the ferry on May 30 and drove out over the apparently limitless grass-covered plains, I could realize something of the feeling of the young mariner who wishes to sail his ship within sight of shore rather than strike out across the boundless ocean. At that time the whole country was a vast solitude, and one would travel for weeks at a time without seeing any white man, or in fact any human being. ("Dinosaurs and coal in the Red Deer Country",* Science, *Ap. 1923)*

Most of the survey this summer was done with horse and wagon, using an odometer attached to the wagon to measure the distances. When the party struck the Red Deer River at the site of the future city of Red Deer, however, Tyrrell decided to survey its course by boat. Taking one man with him to help paddle, he arranged to meet the rest of the party at the mouth of the Rosebud River to the south. It was during this canoe survey of the Red Deer River, on June 9 and 10, just above the mouth of the Kneehills Creek, that Tyrrell found and collected the first of the rich deposits of dinosaur remains that have subsequently made the Red Deer River valley world famous. Two days later, on June 12, his boat passed the future site of the town of Drumheller and Tyrrell landed to investigate the huge outcroppings of coal visible on the river banks. He thus became the first member of the Survey to discover and describe these coal seams which were to have such significance for the future settlement and economy of the region.

During the rest of the summer and into the fall the expedition continued to survey the area of the Red Deer River valley, circling back to Calgary three times to reprovision. There was frequent trouble with the horses who were "broken after a fashion but ... still had minds of their own" and were often difficult to handle, and there were difficulties with the wagon on the rough trails. An axle broke near Rosebud Creek and was replaced with one hewn out of a green spruce tree. With this makeshift arrangement, the expedition turned north along an Indian trail and eventually descended into the valley of Kneehills Creek. Here on the morning of August 12, after spending the previous night camped by the river bed, Tyrrell made an examination of the surrounding river banks. Here he discovered, embedded in the rocks high above the river, a large number of dinosaur remains including a huge and relatively intact skull, later described by the American palaeontologist,


GEOLOGICAL & NATURAL HISTORY SURVEY
Alfred R.C. Selwyn, LL.D., F.R.S. Director
MUSEUM & OFFICE, SUSSEX ST. OTTAWA.
1884
large extinct reptilian that used to roam over the country, the finest as far as known that has been found in any part of Canada, but unfortunately it was too heavy to move this trip, although I have got a large portion of it. it is in so many pieces that it is doubtful whether it can be put together again. It would have been worth a good deal to have it put as it was in the Museum down in Ottawa I also found a number of the very fine bones but am not able to carry them away, as we have a wagon load already.

Letter from J.B. Tyrrell to his father, William Tyrrell, August 13, 1884, describing his previous day's discovery of a large dinosaur head embedded in the bank above his campsite by Kneehills Creek in the Alberta Badlands.

E.D. Cope, as "the largest dinosaur yet found in the Laramie", and eventually assigned to the species named for the province in which it was first discovered, *Albertosaurus sarcophagus*.

This was indeed a spectacular find and Tyrrell fully realized its significance. He set his men to excavating as much of the remains as possible and packing them up as best they could for transport back to Calgary and eventually to the Survey's museum in Ottawa. So numerous were the specimens that the

party had to make a return trip later in the season for a second collection. A wagon with a makeshift axle jolting over the rough prairie trails was hardly a suitable way to carry fragile dinosaur bones, as Tyrrell admitted, but enough of his specimens remained intact and identifiable to persuade the Survey's Director to send a palaeontologist with more suitable tools and equipment back to the Red Deer River valley in the following season. Thanks to Tyrrell's discoveries the excavation and study of dinosaur remains in the Alberta Badlands had begun.

Tyrrell's expedition finished its work late in October. It had been an outstandingly successful expedition for Tyrrell who, in this first season on his own, had made two of the Survey's most important discoveries: the extensive coal deposits of the Drumheller area, which were to be the basis of that area's economy for the next fifty years, and the rich dinosaur beds of the Alberta Badlands which were to prove of even more enduring significance for the area.

During the following two years Tyrrell led two further expeditions to explore and survey the central area of Alberta. In 1885 after a delayed start, owing to the outbreak of the Riel Rebellion, he set out from Calgary at the end of June with a party that included his youngest brother, Grattan, then aged eighteen. With Grattan acting as his canoeist and assistant, J.B. spent a month canoeing down the Battle River to Fort Pitt and making a series of detailed surveys. He seems to have worked his young brother as hard as Dr. Dawson had worked him two years before as Grattan was later to recall this summer as one of the hardest of his life.

In August the party surveyed the area around Sounding Lake and the Neutral Hills, and then in the fall, after Grattan had returned to school, Tyrrell hired William Kitchipwat, a young Stoney guide, to take him along the edge of the foothills of the Rockies, for a survey of the areas drained by the Red Deer and Clearwater Rivers. Tyrrell enjoyed travelling with Kitchipwat, the first of the many regional guides whom he was to employ and rely upon in his succeeding expeditions. He respected Kitchipwat's knowledge of the country through which they travelled and made an attempt to learn some of the Stoney and Cree language from him, compiling a list of native place names which was subsequently published in his *Report on a part of Northern Alberta* (Montreal; 1887).

During the next winter Tyrrell began to study the routes of previous travellers through Alberta and became interested in the career of David

Thompson whose extensive surveys and exploration were then relatively unknown. Tyrrell located some of Thompson's original field notebooks in the Crown Lands Department of Ontario and his 1887 *Report* included a short account of Thompson's exploration of Alberta in 1798 based on these records. Here was the beginning of Tyrrell's life-long interest in David Thompson's life and work and in the history of the fur trade in the west and north.

In the spring of 1886 Tyrrell led his third expedition to Alberta with D.B. Dowling as his assistant. For the first time he carried a camera and was able to document his season's work with over forty excellent photographs. This expedition saw the completion of Tyrrell's exploration of the large territory lying between the Bow and the North Saskatchewan Rivers which had been originally assigned to him by Selwyn in 1884. Much of the 1886 survey was carried out overland but Tyrrell also descended the North Saskatchewan River by boat, first from Edmonton to Fort Pitt, and later from Rocky Mountain House to Edmonton. By mid-November the work was completed and Tyrrell returned to Ottawa to spend the winter preparing a detailed report and maps covering the areas which he had surveyed over the past three seasons.

MANITOBA EXPLORATIONS: 1887-1891

After completing his work on Alberta and writing a lengthy report on the area, Tyrrell spent the next five seasons investigating areas of Manitoba. In 1887 he was assigned an almost completely unknown area of northwestern Manitoba lying to the west of Lake Winnipeg and including the Duck, Riding, and Porcupine Mountains. Starting from the village of Russell, then the terminus of a spur of the Manitoba and Northwestern Railway, he surveyed the river valley systems running east to Dauphin Lake, north to Swan Lake, and west to the Fort Pelly area, just outside the Manitoba border in Saskatchewan. Tyrrell was now developing a keen interest in the past history of the areas he was assigned to survey and he had begun to describe and photograph the old trading posts he came across during the course of his expeditions. He was particularly proud of his composite photograph of Fort Pelly, describing it as "probably the last photograph taken of the fort and perhaps the only good photograph ever taken of such a stockaded H.B. fort" *(Autobiography)*.

The party worked late into the fall, camping in snow on the Swan River in late October. Here they were further delayed by Tyrrell's cutting his foot to the bone while chopping down a tree for firewood. It was a serious accident — "The scar is on my foot still" he wrote fifty years later — and he was unable to walk for some time. Finally, using crutches made by one of his party, he was able to reach Russell and the train east by November 7. The expedition had not uncovered the rich mineral resources which the Survey Director had hoped might lie in the area, but the Museum's collections received over 450 fossils which Tyrrell had collected during the season and 56 excellent photographs provided valuable documentation of the season's work.

Tyrrell spent the winter of 1887-88 writing his report on the previous summer's work and preparing his map of the area he had surveyed. He also continued to pursue his interest in David Thompson, studying the notebooks he had found at the Ontario Parliament buildings and interviewing one of Thompson's daughters in Peterborough. In March 1888 he read his first paper on Thompson to the Canadian Institute in Toronto. Entitled "A Brief Narrative of the Journeyings of David Thompson", it was later published in the Institute's *Proceedings* for 1888.

In June Tyrrell returned to Manitoba to continue his survey of the northwestern portions. This time much of the survey was carried out by canoe. The party surveyed the west and north shores of Lake Manitoba, reaching Fairford in early July. Here

Fort Pelly, Saskatchewan, in 1887. Two overlapping photographs were taken by Tyrrell to create a panoramic view.

they were shown specimens of gypsum and Tyrrell decided to investigate the site where they had been found, north of Lake St. Martin. He was able to persuade the leader of the region's Saulteaux, Chief Wekemowskunk, to guide him to the deposits but the trip was more arduous than Tyrrell had expected. Without a tent to protect them from the insects, they travelled on foot for two days. Tyrrell recalled later:

> *The two days spent on this trip with Chief Wekemowskunk were among the hardest that I ever travelled. The days were hot and moist, the mosquitos and black flies were in incredible numbers, and the Chief was a fast walker, enjoying the heat, though the flies bothered him a little ... On reaching the lake I was almost exhausted.* (Autobiography)

The deposits were extensive, however, and their discovery was a significant one for the future development of the area.

After surveying the shores of Lake St. Martin, the party returned to Lake Manitoba, and spent several weeks exploring its northern and western shores and the adjacent rivers. Early in August, as the party was canoeing up the Fairford River to revisit Lake St. Martin, Tyrrell suddenly collapsed

unconscious, stricken with typhoid fever. He remained unconscious for more than a week, being transported by his party back to Fairford by canoe, then being carried by sailboat down the lake to Manitoba House and from there taken by steamer to the southern end of the lake. Here he lay in a tent for several more days, attended by a doctor who had been summoned from Portage La Prairie. Death appeared so inevitable at this point that nothing more was done for some time, but eventually the Manager of the Manitoba and North West Railway sent an engine and caboose down a spur line to take the patient to Portage La Prairie. From there he was transferred to a train to Winnipeg and eventually reached the Winnipeg General Hospital on August 23, still gravely ill, thirteen days after his initial collapse. He remained in hospital for seven more weeks and spent most of the fall convalescing at the family home in Weston. In December he was back in Ottawa and his friends at the Geological Survey held a special dinner to celebrate his return. Tyrrell's tenacity was becoming a legend.

During the winter Tyrrell wrote a paper on "Post-tertiary deposits of Manitoba and the adjoining territories of North-Western Canada" and submitted it to Professor Chapman at the University of Toronto as his Master's thesis. In June 1889 he was awarded the M.A. degree from Toronto. At the same time he also received a B.Sc. degree from Victoria University in Coburg. His paper on "Gypsum deposits of northern Manitoba" was published in the *Canadian record of science* in April 1889 and his Master's thesis was later read before the Geological Society of America. Tyrrell's professional qualifications as a geologist were now securely established and his reputation was growing steadily.

The summer of 1889 saw the continuation of Tyrrell's exploration of the northwestern portion of Manitoba, D.B. Dowling again serving as his assistant. Tyrrell had purchased for the Survey a small sailboat, which he christened the "Pterodactyl", and in this the party descended the Red River from Selkirk to Lake Winnipeg where they examined extensive iron deposits on Black Island, and then sailed up the lake to the mouth of the Little Saskatchewan River. Tracking and poling their boats through to Lake St. Martin with some difficulty, they continued through that lake and up the Partridge Crop River to Lake Manitoba. After reprovisioning at Manitoba House they spent the remainder of the season surveying parts of Lake Winnipegosis, Waterhen Lake, Lake Dauphin, Swan Lake, Red Deer Lake and the adjacent rivers. Despite being overcome by occasional bouts of weakness, a legacy from his illness of the previous year, Tyrrell

managed to cover a surprisingly large territory, continuing his explorations until the end of October. Travelling by sailboat instead of by canoe enabled the party to make very much larger collections of fossils and rock specimens and Tyrrell estimated the total sent back to Ottawa at over five thousand items.

The following summer Tyrrell and Dowling returned to northwestern Manitoba. For part of the season the party was split in two, Dowling investigating the country to the southeast in the Riding Mountains and Tyrrell travelling up to Fort Pelly in order to spend a month canoeing down the Assiniboine River to Portage La Prairie. Tyrrell then returned by rail to Winnipeg and arranged to have his outfit, including the sailboat, transported by steamer from West Selkirk up Lake Winnipeg to Grand Rapids. Here the party disembarked, had their boat and supplies hauled over the tramway built beside the rapids, and began their ascent of the Saskatchewan River to Cedar Lake. During the survey of this lake Tyrrell located extensive deposits of amber washed up on its west shores. When the party returned, they bypassed the tramway and shot the Grand Rapids for the fun of it, enjoying "the exhilaration of being tossed about on the surging waters of the grandest part of one of the grandest rivers in the Canadian North-west" (*Summary report*, 1890). They then continued around the northern shore of Lake Winnipeg and ascended the Nelson River to survey Playgreen Lake and Little Playgreen Lake. Returning down the east shore of Lake Winnipeg in early September they were beset by heavy gales and several times stormbound.

Just how dangerous these September storms could be was forcibly brought home to Tyrrell's party. Twice the party had camped beside a Mounted Police detachment on lake patrol, under the command of an old Upper Canada College friend of Tyrrell's, H.E. Morphy. Just two days after their reunion, the police boat was caught in a severe storm, struck a reef and capsized. The Mounted Police officers were drowned and the captain later succumbed to exposure. After this catastrophe Tyrrell took stock of the continuing stormy weather and decided to leave the open expanse of the northern section of the lake and continue his survey in the more protected waters in the south. He spent the next month examining the east coast of the lake, south from Dog's Head to the mouth of the Black River, travelling on foot himself in order to examine the terrain in detail, with the sailboat accompanying him off shore, carrying his supplies and equipment. By mid-October he had reached Selkirk and the season was concluded.

LAKE ATHABASCA REGION: 1892

In the spring of 1892 Tyrrell was surprised to learn he was not to return to Manitoba as he had expected but had been assigned instead to a remote and unknown area of northern Saskatchewan, the region lying between the Churchill River and Lake Athabasca, east from the Athabasca River to Black Lake and the Black River. D.B. Dowling was to be his assistant once again, but it was agreed that he would work independently for part of the season, descending the Athabasca River from Athabasca Landing to Lake Athabasca and surveying the southern shore of that lake. Tyrrell would explore the country to the east of the Athabasca River as far north as Black Lake and the two parties arranged to meet at Fond du Lac, at the eastern end of Lake Athabasca, at the beginning of August. In early June, while Dowling headed north to Athabasca from Edmonton, Tyrrell set out with his party from Prince Albert for Ile-à-la-Crosse Lake. Here he was fortunate in hiring as an additional canoeist and guide Ethingo Campbell, a Chipewyan from the region, whose familiarity with the Lake Athabasca area was to prove very helpful in the next months.

On June 29 the expedition left the Churchill River and turned north up the "Atik" (Caribou) River, renamed by Tyrrell the "Mudjatik" (Bad Caribou) River, as it proved unexpectedly difficult to ascend. After two weeks of very hard work they reached Cree Lake. Tyrrell savoured the moment:

> *Standing on the summit of a rocky hill, on a beautiful bright evening in July, I enjoyed the rapture of being the first civilized man to look down into the clear depths of this large lake and to gaze into the distance over its shining waters. ("An expedition through the Barren Lands of Northern Canada",* Geographical journal, *Nov. 1894)*

After surveying Cree Lake, the party descended the arduous rapids of the Cree River to Wapata Lake and Black Lake. Here Tyrrell left two of his men with the expedition's equipment and their few remaining supplies and, taking just one light canoe, turned west along the Black River toward Athabasca Lake and the Hudson Bay post at Fond du Lac to replenish his supplies and to meet Dowling as previously arranged. After two lengthy portages totalling over six miles, he reached Fond du Lac on July 27. Dowling's party arrived soon after and accompanied Tyrrell back to Black Lake with the additional supplies, aided over the interminable portages this time by a party of Chipewyan travelling through the region.

During the ensuing survey of Black Lake Tyrrell's party met other Chipewyan from the area. One of these, known to Tyrrell only as "Andrew", drew for him an extremely interesting map of "a good canoe route northward from here, on which the Indians travel to the Barren Grounds in their large canoes" (*Field notebook*, 1892). Tyrrell's guide, Ethingo, then recalled that long ago he had also travelled north,

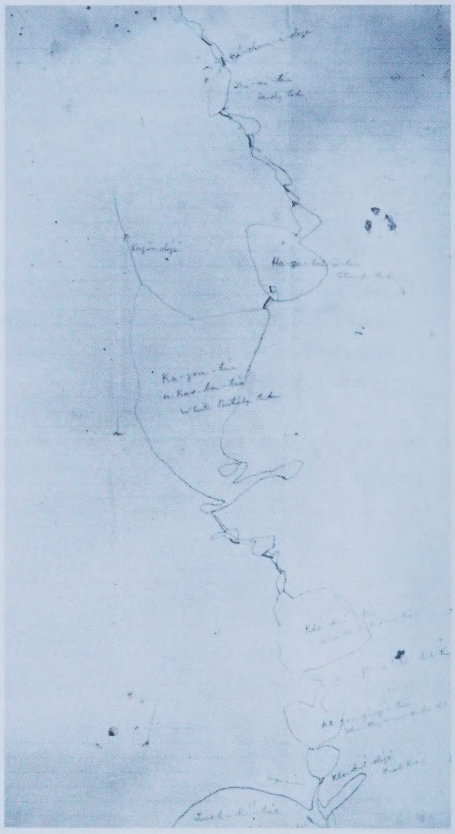
> *... down the river to a great lake called To-bon-tna lying far out in the Barren Grounds with no wood at all on its shores. It has no islands and is of great extent. The lake is reported to be close to the sea. It would take about six weeks to make the trip from here to there and return ...* (Field notebook, *1892)*

A few days later Tyrrell met other Chipewyan who had come down from Reindeer Lake and, with Ethingo as interpreter, gained more information about a route across from Reindeer Lake to the coast of Hudson Bay. Another map was drawn by Gabriel Thieelzoa and Tyrrell was assured that the route was an easy one. Here was the inspiration for Tyrrell's proposal the following year that he be sent to explore the wilderness of the Barren Lands. Based on the information and maps he received from Ethingo and the other Chipewyan of the region, Tyrrell felt confident that he could follow the great north river up to Lake "To-bon-tna" (Dubawnt Lake) and then continue eastward across to the west coast of Hudson Bay.

In the meantime, however, another adventure across unknown land beckoned. At the head of Drifting River on Lake Wollaston, Tyrrell met a group of Chipewyan who told him of an old canoe route up the "Drifting-ice" River (now named the Geikie) and across a height of land to the Churchill River. The country was totally unmapped and Tyrrell could not resist the challenge.

> *This route had not been travelled for a long time, and the portages would probably be all blocked with fallen timber if they could be found at all. Besides this our stock of provisions would last for very little more than a week longer. However, it was important that a survey should be made across this portion of the country if possible, and the three men from Ile à la Crosse were willing to try to get through it with me.* (Summary report, *1892)*

Tyrrell again split his party. Dowling and his men were to finish the survey of Wollaston Lake, and then proceed east to Reindeer Lake, and south by the Reindeer River to the Churchill River. Tyrrell's party set off up the Geikie on August 25, finding the way even more difficult than had been anticipated.



Portion of a Chipewyan map showing a route from Pelican Lake to Lac La Hache. Drawn by Jim John, July 17, 1893 with place names supplied by J.B. Tyrrell. An example of the many Chipewyan and Inuit maps which were collected by Tyrrell during his northern expeditions of 1892 to 1894.

The portages were indeed obscured and the route difficult to follow. On reaching the source of the Geikie they became lost for several days, circling through the maze of rivers and lakes in search of a way south to the Churchill River. At last they came to a lake which one of the Chipewyan members of the party recognized from a previous hunting expedition as Whitefish Lake (now known as Foster Lake). He was able to guide the party down the rapids of Whitefish River to finally reach the Churchill River on September 14.

Tyrrell and his party had spent three weeks on the route down from Black Lake and still had a week's hard paddling up the Churchill before they could reach Ile-à-la-Crosse. They were living on "what ducks we could shoot from time to time, for our stock of provisions had been exhausted some time before." There was now no game and even the birds were scarce. It was only with the help of other travellers that they met along the way that they were able to continue. One, met when Tyrrell's party was completely out of food, gave them a few ducks and told them where to dig for potatoes he had planted on an island. Later they found some dried moosemeat in an empty house at the mouth of Pine River. Later again they were able to buy bacon and flour at a Chipewyan camp on Primeau Lake. Finally on September 20 they reached Ile-à-la-Crosse "just as a heavy equinoxial storm began to set in" (*Report on the country between Athabasca Lake and Churchill River*, 1896).

ACROSS THE BARREN LANDS: 1893

Despite the hardships and dangers of the final weeks of the 1892 expedition, Tyrrell seemed to have been exhilarated by its success. During the winter he prepared his detailed and lengthy report on the area and worked with Dowling on the preparation of a large-scale map. He also drafted a carefully worded proposal for an expedition to explore the Barren Lands during the next season. He wrote persuasively of the possibility of valuable minerals being discovered in the area and argued that the cost of the expedition would be low, since the party would be small and could procure much of its food supplies from the caribou herds roaming the region. He outlined the projected route for the expedition in general terms. From Black Lake they would portage to the great northern river described to Tyrrell by the Chipewyan he had met in 1892, follow it north to Dubawnt Lake, and descend the river flowing westward from that lake to Chesterfield Inlet on Hudson Bay. The party would then canoe down the coast to Churchill, either returning south on a Hudson Bay Company steamer or continuing by canoe to York Factory and then inland along the well established trading route to Oxford House, Norway House, and Lake Winnipeg. Mindful always of family loyalities and obligations, Tyrrell also proposed that the Survey hire as his assistant and interpreter his brother James, who had already spent a year in the Arctic as a meteorological observer and could speak the language of the Inuit of the Hudson Bay region.

It was spring before Tyrrell's proposal was approved. Early in April Dr. Selwyn instructed him to begin preparations and agreed that James Tyrrell could accompany the expedition as surveyor and Inuit interpreter "at six dollars a day". Tyrrell moved quickly, knowing the importance of beginning his lengthy expedition as early in the spring as possible. By the end of the month he had hired his principal canoe men. These were Pierre, Louis, and Michel French, three Iroquois brothers from the Caughnawaga Reserve near Montreal, recommended to Tyrrell for their expert canoeing skills; and John Flett from Prince Albert, who was part Loucheux and had a good knowledge of the Chipewyan language as well as some familiarity with the language used by the Barren Lands Inuit.

Two eighteen foot cedar strip canoes were ordered from the Peterborough Canoe Company. Arrangements were made with the Hudson Bay Company for supplies to be transported up to Lake Athabasca and for letters of credit which would enable the expedition to obtain additional supplies from other trading posts on their route. Lastly a new Hawkeye camera which used rolls of film, instead of cumbersome glass plates, was procured from the Topley Studio in Ottawa.

In mid-May J.B. and James travelled out to Edmonton. Once the rest of the party had assembled, the expedition set out by wagon for Athabasca Landing, one hundred miles to the north. Here, on May 31, the six-man party embarked in their two canoes and began the first leg of their lengthy journey, paddling four hundred and thirty miles up the Athabasca River to Fort Chipewyan.

Part way to Lake Athabasca, at Fort McMurray, the party was joined by two men from Ile-à-la-Crosse, Jim Corrigal and François Maurice, bringing the canoe which Tyrrell had left there the previous season. These two men, one part Cree, the other part Chipewyan, had been hired by the Hudson Bay factor at Ile-à-la-Crosse on Tyrrell's behalf. They were to prove extremely important members of the expedition — not only for their knowledge of Cree and Chipewyan and for their canoeing skills, but for their remarkable strength and endurance.

On June 17 the party reached Fort Chipewyan. Twenty-two thousand pounds of supplies had been brought up by steamer from Fort McMurray and were now loaded into the canoes. Tyrrell hired a Chipewyan from the region to act as their guide and, accompanied by him and his family in a bark canoe, the expedition set off down Lake Athabasca. Beset by bad weather, they did not reach the eastern arm of the lake until the beginning of July, and their guide then refused to go further. The party pressed on without him to Black Lake and were able to locate without much difficulty the portages that took them over to Selwyn Lake (named by Tyrrell for the Survey's Director). They then spent several days searching for the next portage which Tyrrell believed would take them across a height of land to the great river of the Barren Lands. At last they met a party of Chipewyan who, after much talk of the ferocity of the Inuit, reluctantly agreed to show them the portage across to Daly Lake (named by Tyrrell for T.M. Daly, then Minister of the Interior). Here they were delayed again by storms, but eventually discovered the outlet of the "Telzoa" or Dubawnt River and began

Three Inuit men photographed at the head of Baker Lake, September 2, 1893.

to follow it north. Tyrrell gives a rare hint of their discomfort in an account of the trip he published the following year in the *Geographical journal:*

> *While within the forest we had been tormented both day and night by immense swarms of mosquitos, but now in the more open country, the black flies made it almost impossible to move about with any portions of our hands or faces uncovered. ("An expedition through the Barren Lands of northern Canada",* Geographical journal, *November 1894)*

At Carey Lake (named by Tyrrell for his future father-in-law) the party were delighted to come on a large herd of caribou. About sixty animals were shot immediately to replenish the expedition's dwindling supplies, and three days were spent in skinning and drying the meat, while J.B. and James took a large number of photographs of the immense herd.

> *Instead of our rifles we took the camera, and, walking gently, we would often approach within a few yards of the animals as they quietly grazed, and thus managed to secure thirty-seven photographs, showing the herds of deer in various positions. ("An expedition through the Barren Lands")*

The party continued down the Dubawnt River, reaching Markham Lake (named for Admiral A.H. Markham) on August 3. Here they found "a decided change in the climate." Snowbanks lay on the hillsides and chunks of ice floated in the water. On August 5 they camped in a grove of stunted black spruce trees, the last timber they were to see on this part of the river. The next day Tyrrell climbed a hill and saw before him the huge expanse of Dubawnt Lake — apparently covered with a solid sheet of ice. Although the men were anxious to turn back, Tyrrell pushed on and found there were narrow channels of open water still navigable between the shore and the ice pack. For ten days the party paddled and portaged their way up the lake, several times stormbound, experiencing both rain and snow, their only fuel for cooking and warmth being a little dried moss. Finally, on August 17, they reached the outlet of the Lower Dubawnt River and began its descent. Now they began to see remains of Inuit camps and on August 20 the first Inuit family was encountered. With James acting as interpreter, the party was made welcome, and a sketch map of the river was procured.

As the party continued down the river they realized they were being carried further and further north and Tyrrell became anxious, fearing that the river emptied into the Arctic Ocean instead of into Hudson Bay as he had expected. On August 25, however, they reached the junction of the Dubawnt River with the Thelon from the west. To their relief driftwood was scattered on the river banks, indicating the river must be wooded not far above the junction. That night the men were able to enjoy the luxury of a fire, bake bread and boil up some caribou meat. Tyrrell then made a characteristic decision:

> *Our safest plan of operations was now to ascend the west branch of the river and reach the wooded country before the winter set in, and find our way to Great Slave Lake or back to Athabasca Lake. But I could not forego the pleasure of tracing to its mouth the great river that we had descended so far. Therefore the next day we pushed on to Aberdeen Lake ... ("An expedition through the Barren Lands")*

On September 2 the party reached Baker Lake. Later James wrote of their exhilaration as they paddled out into its waters:

... gradually as we passed out into the broad shallow delta and gazed over the deep blue limitless waters beyond, the gratifying fact forced itself upon us that we had accomplished what we had started out to do, viz., to explore a route through the heart of the Barren Lands where certainly no other white men, if indeed Indians or Eskimos, had ever passed. We were still, of course, a long way from being out of the Barren Lands country, but once on the waters of Baker Lake, as we now were, the remainder of the road was to some extent known to us. (J.W. Tyrrell, Across the sub-arctics, *1897)*

At Baker Lake other Inuit families were encountered. Tyrrell took several pictures, the first photographs to be made of these Barren Lands people whom later ethnologists were to designate the Caribou Inuit, distinguished from the coastal Inuit by cultural and language differences.

The way to Hudson Bay and Churchill was now plain but Tyrrell remained anxious, realizing that only by travelling at top speed could his party hope to reach Churchill before the winter set in. Food supplies were also running low. On September 3 they shot their last caribou. Fierce autumn storms had begun to rage and prevented the canoes from being launched for several days at a time. Finally, on September 12, they reached the mouth of Chesterfield Inlet and camped on the rocky shore of the open waters of Hudson Bay.

Good weather made the run down the coast towards Churchill seem easy initially, but the first of many succeeding storms broke three days later, and in the next two weeks the expedition was unable to cover more than one hundred and twenty miles. Their situation became increasingly difficult as the bay began to freeze and little game was available for food. Finally Louis French was able to shoot a polar bear and the meat, boiled up on small fires of moss, sustained the party for a further five stormbound days, but their plight was fast becoming desperate.

On October 6 the winter had settled down on us with all its arctic rigour, and even in the sun at midday the thermometer remained considerably below freezing-point. We were without food or fuel, and our clothes were worn to rags. Two hundred and sixty miles of shore still lay between us and Churchill. ("An expedition through the Barren Lands")

The decision was made to cache most of the equipment and one of the canoes so that, travelling as lightly as possible, with four men to paddle each canoe, they could race south to Churchill before even harsher weather set in and ice replaced the open water.

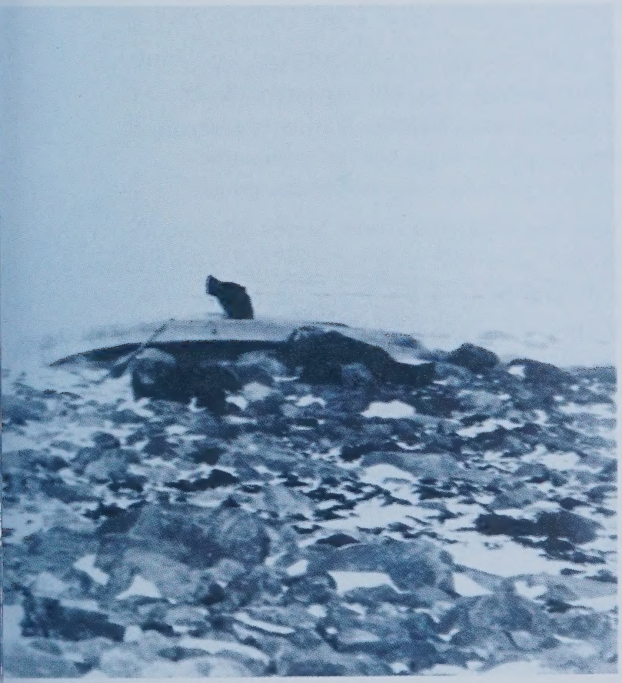
We struggled onward for ten days, living on what few ducks we could shoot in the open water. The weather was very cold, and the water that was splashed over us by the wind froze on our clothes and beards. We had constantly to break the ice from our paddles, as they became too heavy for us to swing. ("An expedition through the Barren Lands")

They all now began to suffer from weakness and dysentery as well as from exposure. Hoping that they were now within a day's travel of Churchill, Tyrrell sent John Flett overland to bring back a rescue party, but Flett returned on the following day, having been unable to cross the open stretch of the Seal River and having found nothing to eat since he had left the camp. After this setback the canoes were launched once more. Heavy ice forced them miles off shore. Darkness fell and the party passed a dreadful night on the water, unable to regain the shore and in great fear of being crushed by the ice. The boats were battered and leaking badly. J.B. spent the night sitting in the icy water, bailing constantly to keep his canoe from sinking. Michel French had both his feet badly frozen and his brother, Louis, appeared to be weakening rapidly under an attack of dysentery. After thirty hours in the canoes they were at last able to reach solid ice close to shore and managed to haul the canoes across to the shore. Here they found

driftwood and were able to make a fire to cook some meat from a seal which providentially they had managed to shoot during the previous day.

It was now obvious that the party could not continue by canoe and that most of its members were unable to walk any distance overland. Tyrrell felt sure that they were now not far from Churchill and Jim Corrigal and John Flett volunteered to try again to reach the settlement on foot and bring back transport and food. After their departure on October 16, the remainder of the party managed to move their camp about two miles back from the shore to the shelter of a grove of spruce trees. The next day François Maurice, now the only one of the group with strength enough to walk more than a few yards, was able to shoot a few ptarmigan and the party subsisted on these for another day. Then, on the afternoon of October 18, Jim Corrigal returned, bringing a rescue party with food, clothing, and four sleds and dog teams. The next day the exhausted party was carried into Churchill — just 20 miles away.

At Churchill, billeted in the Hudson Bay post, the party gradually regained strength, although the meagre food available was of poor quality and fresh



Camp on the west shore of Hudson Bay, October 5, 1893. To the right a lonely figure bends over a canoe — part of the cache of equipment left at this camp.

meat was lacking. The last steamer down the coast had long since departed and there were insufficient supplies at the Post to keep the party over the winter. The expedition would have to return south by the inland route as soon as possible. By November 6 enough ice had formed on the Churchill River for a crossing to be made and the party began the long overland trek south to Norway House. Tyrrell was able to obtain only one dog team from the Hudson Bay Post to carry supplies and to transport Michel French, whose feet were were in no condition for walking. The rest of the party proceeded on snowshoes, pulling their dunnage on toboggans. As their guide Tyrrell had hired James Westascot, a Cree familiar with the region and reputed to be the best hunter and traveller in the country. They were to need all his expertise on the long trip to follow.

By November 12 the party had reached the mouth of the Nelson River. They attempted to cross but their boat became caught in the ice part way and they were forced to return to their starting point. For over a week they camped on the river bank, the ice being too thick for the boat, but not secure enough to cross on foot. Once again they were dangerously short of food and the weather was bitterly cold. At last, having hauled the boat upstream two and a half miles to a point where the ice appeared less impenetrable, and after much effort and near catastrophe, they were able to gain the farther shore and continue overland to York Factory. Here they were able to secure medical attention for Michel French from the Hudson Bay officer, Dr. Milne, who was also a medical doctor. Since Michel was still seriously disabled it was agreed that he would remain at the post in Dr. Milne's care, his transport back east to be arranged later in the winter.

On November 28, having hired another dog team and James Westacot's young brother, Charlie, as its driver, the party left York Factory and travelled up the Hayes River to Oxford House and then onward, still on snowshoes, reaching Norway House on December 20. Here the group split up, those from the west travelling back along the Saskatchewan River, and the Tyrrell brothers with Pierre and Louis French continuing on by dog sled to reach West Selkirk on January 1, 1894. Here Tyrrell sent a telegram to his anxious fiancée in Ottawa: "Happy new year all well telegraph & write Manitoba Hotel Winnipeg." The same day he wired to Dr. Selwyn: "Complete success crossed Barren Grounds explored Chesterfield Inlet and west shore of Hudson Bay."

DOWN THE FERGUSON AND THE KAZAN: 1894

The Tyrrell brothers returned to Ottawa in a blaze of glory and publicity. No word of the expedition had been received since the previous summer, and their safe return had begun to seem more and more unlikely. Their astonishing arrival in Winnipeg on New Year's day, after a journey of 900 miles through the snowy wastes by dog team and snowshoes, made headlines across the country. Both brothers became celebrities, being interviewed and quoted extensively not only in Canadian newspapers and magazines, but in American and British ones as well. J.B. was greatly in demand as a popular lecturer and was fêted at a variety of dinners and receptions. He dined at Rideau Hall with the new Governor General and his wife, Lord and Lady Aberdeen, and stayed until two o'clock in the morning talking about his adventures. A few weeks later he gave a lecture to the prestigious Haddo Club at Rideau Hall and dined again with the Aberdeens. Other lectures followed, and more notices appeared in the papers. Not everyone was as enthusiastic as the Governor General and his wife, however, as Tyrrell was later to recall.

> *As far as I know this was the most extensive newspaper publicity given to any work done by a member of the Geological Survey, and it was not to be wondered at if some of the other men got tired of it, and I think that Dr. G.M. Dawson was annoyed at it, for he was never friendly towards me afterwards ... In addition there was a little criticism in the House of Commons when the expenses were being criticized and it was stated that my expedition had cost about $7000.* (Autobiography)

Tyrrell enjoyed the publicity, but undoubtedly the happiest event of the winter for him took place on Valentine's Day 1894 when he and his fiancée of the past two years, Mary Edith Carey, were united in marriage. The couple had first met in the spring of 1891 when a friend took Tyrrell to hear the Rev. George M. Carey preach at First Baptist Church. After the service Tyrrell was introduced to the minister and invited home for supper. Here he met the family's youngest daughter, Mary Edith, or "Dollie" as she was always called by her family and friends. Just 21, she was captivated by Tyrrell's stories of his adventures in the west and told her sister that night, "when one sees a man of that kind, all others seem so uninteresting and tame" (M.E. Tyrrell, *I was there*, 1938). The interest was mutual and, by the next May, J.B. and Dollie were officially engaged.

Dollie had waited eight long months for Tyrrell to emerge from the Barren Lands — often, as she admitted in her autobiography, despairing of his return. Now she and Tyrrell were anxious to begin their life together before the next Survey season forced another absence. Although Tyrrell's reputation was growing steadily, however, his salary from the Survey had remained unchanged and was hardly sufficient to support a wife. That winter and spring the newlyweds dined more than once at Rideau Hall and enjoyed taking part in Ottawa society, but they were living in just two rooms in Tyrrell's old boarding house on Metcalfe Street.

By April Tyrrell had finished his summary report on the 1893 Barren Lands expedition and was proposing a return trip to investigate the Kazan River. Dr. Selwyn was reluctant to send him back to the Barren Lands, given the expense involved with the previous trip, but Tyrrell had found an unexpected ally in one of the Governor General's *aides de camp*, Robert Munro Ferguson, an adventurous young Highland Scot and an avid sportsman. Ferguson's imagination had been fired by Tyrrell's accounts of his adventures on the 1893 trip. He suggested to Tyrrell that he accompany him as his assistant on a second trip and offered to pay, not only his own expenses, but also any additional costs for equipment which exceeded the Survey's budget. Lord Aberdeen himself urged T.M. Daly, the Minister of the Interior, to approve the trip and late in May Tyrrell was informed by Dr. Selwyn that his wish to return to the Barren Lands had been granted.

By June Tyrrell and Ferguson were in Winnipeg assembling their outfit. In addition to a cook, three canoe men were engaged: John Flett (who had been part of the 1893 expedition), John Harper, and Roderick Thomas. The Lieutenant Governor, Sir John Schultz, with whom Ferguson stayed in Winnipeg, took a keen interest in the adventure and contributed an additional canoe to carry supplies, as well as a pair of carrier pigeons to bring back messages from the wilderness. On June 16, all preparations completed, the expedition departed by steamer from Selkirk and reached Grand Rapids on Lake Winnipeg a week later.

Once over the Grand Rapids, the party launched their canoes and began the ascent of the Saskatchewan River to Cumberland House. Although this part of the route was well known, it proved unexpectedly arduous, since the river was in flood and the current strongly against them. The first serious mishap occurred almost immediately, just below Cedar Lake, when Ferguson's canoe capsized as it was being poled and tracked through a rapids, due to

the inexpert handling of the tracking rope by the cook. Both the steersman in the stern and Ferguson, who was poling in the bow, managed to reach shore unharmed but most of the supplies were lost, including Ferguson's rifles and camera and the two carrier pigeons.

> *My two war-sacks luckily floated like ducks ... & were recovered about two miles below in the lake — fairly soaked! Two guns (rifles), all the bacon, sugar, flour & other properties to the extent of two or three hundred dollars went to glory ... The view over the lower lake didn't look so pretty with an upturned canoe afloat & very few specks of baggage bobbing along on its surface & disappearing. (Ferguson,* Diary)

After this setback they continued up the Saskatchewan toward Cumberland House with as much speed as possible. "The two Peterboro canoes are beauties," Ferguson wrote enthusiastically. "They gain an hour a day or more on a birch-bark." By June 28 they had reached The Pas and on July 2 they arrived at Cumberland House where they were warmly welcomed by Roderick McFarlane and James McDougall "two of the best travellers and finest of the old timers in the employ of the H.B. Co." (Tyrrell, *Autobiography*). A day was spent at the Post, reprovisioning the expedition and replacing the supplies lost at the rapids, hiring additional canoemen, and enjoying the company of the two Scots, who were particularly welcoming to their fellow countryman, Bob Ferguson, loading him up with tins of *paté de foie gras* and other choice delicacies. The following afternoon the party embarked once more and, as they paddled northward up the lake, McFarlane and McDougall fired a parting salute from two little brass canons at the fort, relics from the past, nicknamed "Thunder" and "Lightning" — perhaps a rather ominous hint of the difficult travelling that lay ahead.

By July 11 the party had crossed Frog Portage into the Churchill River. Ferguson's diary gives a vivid glimpse of Tyrrell in action at one of the rapids:

> *There was a great deal of talk & "pow-wow" among the Indian guides till T. said he'd try it, and paddling some way up stream, turned & "rode" for the centre of the rapid like a cross-country flyer! The canoe seemed to go a tremendous pace seen from the side. Then gentle David, my steersman, plucked up courage. Paddled up stream to get his head straight for the fence & over we went — a smooth shoot first & then a jump on the first broken water below — and for half a mile or so one goes like an ocean greyhound. (Ferguson,* Diary)

Reaching the juncture of the Churchill with the Reindeer River, the expedition turned north to ascend the Reindeer to Reindeer Lake. On July 18 they reached the north end of Reindeer Lake and Fort Du Brochet, the most northerly Hudson Bay post in the district and the party's last point of contact with the south. Here Tyrrell engaged two Chipewyan men, Thebayzie and Xavierseese, to guide the expedition from Du Brochet to Ennadai Lake on the Kazan River.

On July 20 they began the ascent of the Cochrane River and by July 27 they had left that river to portage across to the headwaters of the Thlewiaza River. Over a week and forty-four lengthy portages later they at last reached Kasba or White Partridge Lake, the source of the Kazan River, Tyrrell's chosen route through the Barren Lands. From Kasba Lake they began the descent of the Kazan, arriving at Ennadai Lake on August 10. Here their Chipewyan guides turned back, fearing to encounter their traditional enemies, the Caribou Inuit, whose hunting territory the expedition was now entering. Two days of rain and snow delayed the party again but on August 14 they were able to cross to the western side of the lake and sighted caribou for the first time. The hunt was on, much to Ferguson's glee and Tyrrell's relief. Twelve animals were shot and all the men enjoyed a feast of the first fresh meat they had tasted for over two months.

The party continued down the Kazan River the following afternoon, taking with them as much of the partially dried meat as they could carry. More caribou were encountered and traces of recent Inuit camps were seen along the river banks.

> *Round one bend of the river appears a band of deer feeding up a hill-side — until closely seen the forms are but artificial after all. On land they prove to be not deer but ruses of wood (sticks) & stone and moss & crowberry weed. The body of stone or peat — with crowberry vines for hair or moss ... There was a long line of these winding up from the river to a lake about half a mile inland ... A turn back towards the river ... brings us to a pile of half butchered carcases of deer, twenty or more, drawn up upon the shore, or half immersed lying at the water's edge. Stuck in the sand near by stood an Esquimo deer spear with which they had all been killed from the kyacks while swimming the 'crossing'. The dumb 'drivers' had scared them in at the place where the Inuits [sic] waited, sitting under some knoll with their kyacks ready beside them. (Ferguson,* Diary)

Now travelling without guides or maps, Tyrrell and Ferguson were anxious to meet Inuit hunters who could give them information about the river.

Tyrrell had begun to fear the Kazan River was taking them much farther north than he had expected and that it would bring the party out to Hudson Bay at Chesterfield Inlet, too far north, too late in the season, to allow them to reach Churchill safely. Tyrrell had no wish to relive the harrowing trip down the coast he had endured the previous fall and Ferguson shared his apprehension. After enduring a day of rain mixed with snow and icy winds, he noted that "it seemed as if nature was chilled to the bone & would never smile again. We felt pretty much that way ourselves" (Ferguson, *Diary).*

The next day, however, the party suprised two Inuit women on the river bank, engaged in skinning a caribou. Shouts of greeting and then presents of tobacco allayed the women's initial apprehension and eventually they agreed to accompany the party down the river to their camp and reassure its fearful inhabitants that the strangers meant no harm. Tyrrell was able to barter needles and tobacco for boots, coats and a robe from the women in the camp and, despite his lack of language, to get one of the men, nicknamed "Hallo", to draw a map of the river. "Hallo" and two other men then volunteered to accompany the party as they continued down the river toward "Hallo's" own camp.

For the next few days the party were to meet many more Caribou Inuit. Most had not previously encountered "Kabloonahs" (white men) and as news of the expedition spread along the river, kayak after kayak shot out from the shores to greet them.

Caribou Inuit photographed on the Kazan River, August 25, 1894.

> *At times we had twenty or more of these little craft clustering round about us — darting in twos & threes from behind every other point ... They offered us food in their tents — trooped out to fetch brush for our fires — carried the baggage ashore & ministered to all of the wants they knew how to supply ... they laughed & chatted with us — towed our canoes with their fish lines — carried the outfit across the portages. (Ferguson,* Diary)

The friendliness and hospitality of the Inuit amazed the party. Tyrrell found that these Inuit along the Kazan River all knew of his journey along the Dubawnt the previous year. They knew too that he had stopped his men from breaking up an old, apparently abandoned, Inuit sled for firewood and that he had left a plug of tobacco on the cached sled to recompense the owner for the damage already done. This gesture of respect had obviously been appreciated and the story of his journey appeared to have been told far and wide across the Barren Lands.

> *We continued down the river, almost every day passing two or three small Eskimo camps, where we were always welcomed kindly, and our presents of tobacco &c. were received with shouts of joy. With needles, thimbles &c. we purchased deer-skin clothing to protect ourselves against the severity of the autumn weather which was now so nearly upon us. (Tyrrell,* Report on the Doobaunt)

When the party reached "Hallo's" camp on August 18, Tyrrell persuaded one of the young men, Kakkuk, and his father, Ahyout, to accompany the party out to Hudson Bay. "Their services proved invaluable," Tyrrell later wrote, "not only in leading the way through the intricate lakes and down the many difficult rapids, but also in obtaining a plentiful supply of caribou meat" (Tyrrell, *Report on the Doobaunt).*

On August 21 they reached Angikuni Lake where they were once again delayed by adverse winds and storms. Here they were visited by Annuliak, an Inuit trader, who was headed for the Du Brochet trading post. In return for a letter of credit for half a pound of tobacco, Annuliak agreed to carry out a letter from Tyrrell to his wife. (The letter was duly delivered to the trading post and eventually reached Dollie in Ottawa — on March 5, 1895.) Later, stormbound in their tent, Tyrrell and Ferguson passed the time by compiling a vocabulary of the Caribou Inuit language with the help of their guides, Ahyout and Kakkuk. The resulting glossary formed the basis for the vocabulary eventually published as an appendix to Tyrrell's report on the expedition.

Finally the storm lifted and the party was able to continue though Angikuni Lake and down the Kazan River. On August 26 they camped at a series of rapids just above Pasamut's camp, named by Tyrrell for its leader, a well travelled Inuit trader. That night one of Pasamut's sons visited Tyrrell's camp and drew a map of the Kazan River which clearly showed the river running north to Chesterfield Inlet — "a very stunning blow indeed," as Ferguson wrote in his diary that night.

> *It would take us eight days or so to get there & the same old racket that T. went thro' last year so direfully & narrowly with life wd have to be sustained again — perhaps less fortunately than then — and that meant "cold Kabloonah" for the little white foxes' breakfast and tea. (Ferguson,* Diary)

Ferguson's anxiety was shared by Tyrrell who now decided that the only safe course for the party was to turn back and attempt to retrace their route to the Du Brochet trading post, although it was already almost too late in the season to reach the post before the rivers and lakes froze. The following day, while the men portaged the supplies back up the river in preparation for their return, Tyrrell and Ferguson shot down the rapids to the Inuit camp to seek more information from Pasamut himself, recently returned from a trading trip to Marble Island. Pasamut confirmed that the Kazan River did indeed run north to Chesterfield Inlet, but he described another more direct route out to the coast following a river to the east. Tyrrell resolved at once to try this route and sent back word to the rest of the party to reverse their efforts and bring the canoes and supplies down to the camp.

As Tyrrell and Ferguson waited for the rest of the party to arrive, they were well entertained, dining on caribou tongues, an Inuit delicacy which they much enjoyed. The camp was a large one with seven tents and 55 inhabitants. Children played naked in the chill air, splashing each other in puddles. From one tent Ferguson heard chanting and singing as a woman laboured in childbirth. In another he and Tyrrell watched men playing on a drum. They were brought to the bed of a young man groaning in anguish from a mortified gunshot wound and they were appalled at his suffering and upset that they could do nothing to help him as was so clearly expected. "The poor fools cd only give away pieces of tobacco," Ferguson wrote sadly. Late in the afternoon the rest of the party arrived; the canoes were loaded with an additional hundred pounds of dried caribou meat, which Tyrrell had been able to purchase from the camp, and the expedition continued down the Kazan River toward Yathkyed Lake and the new route to the east.

The next day Ferguson's canoe ran aground in a rapids and took two and a half hours to repair.

> *Then down the stream again. It became a perfect nightmare now — darting headlong over the flashing boulders — just grazing now & then & shaving some swirling monster by an inch or two. If one could but stop for a moment for breath — but the stream swung on & it was all we could do to paddle like fury ... (Ferguson,* Diary)

As they continued down the river they saw many caribou feeding on the banks, and the following afternoon they passed through a narrow section of the river identified by their Inuit guides with some excitement as "Palelluah" (Padlerjuaq), a famous caribou crossing. Tyrrell, who had carefully studied Samuel Hearne's journals prior to the trip, also recognized the site. "It is probable that this is where Samuel Hearne crossed the Kazan River above Yath-kyed Lake in 1770 ... which he describes as a celebrated deer crossing place" (Tyrrell, *Report).* When the party entered "Hicoliguah" Lake the next day, Tyrrell realized he had found the lake which Hearne had named Yathkyed and that the expedition was now traversing the region that Hearne had described in his journals over one hundred years before.

The party spent the next two days crossing Yathkyed Lake and then continued the descent of the Kazan to the next Inuit encampment. Here they heard again that the Kazan River flowed into Chesterfield Inlet and that there existed another route eastward to Kaminuriak Lake that would take them out to the coast farther south. Ahyout strongly objected to following this route, on the grounds that it was much more difficult than the route along the Kazan and largely unknown to him. Tyrrell was adamant, however, and eventually Ahyout agreed to try the new route and engaged on Tyrrell's behalf six additional Inuit from the camp to act as guides and to help with the portages. "Thus ended a very anxious day," Tyrrell noted, uncharacteristically revealing just how worried he had felt *(Autobiography).*

On September 1 the expedition left the river and began the portages eastward. The sun shone brightly — it was the last good weather they were to enjoy for eighteen days. They spent the next five days travelling over a chain of twelve difficult portages — many ankle-deep in water — and experiencing constant wet and stormy weather. Finally on September 5 they reached the unknown lake out of which flowed the river to the sea. Tyrrell named both lake and river in honour of his travelling companion, Ferguson, whose enthusiasm and good humour had never flagged despite the hardships and anxiety.

The party, now consisting of two canoes and three kayaks, sped down the Ferguson River to Kaminuriak Lake. There was no shortage of meat for caribou were still plentiful, but there was no wood or even moss to serve as fuel for cooking fires. Beset by continuous storms, they suffered greatly from the cold and wet. Tyrrell anxiously noted that ice was now forming around the ponds at night, indicating the season of open water was almost over. By September 13 they had reached Quartzite Lake, named by Tyrrell for the great ridge of quartzite stretching across the landscape to the north and south. Here the party was stormbound for two days as snow and sleet fell. On the second day Ahyout explained to Tyrrell that a woman had died near the camp and that the storm was caused by her spirit, angered by white men going down the river.

> *If I would give him a plug of tobacco he would take it up the hill and give it to her, and tell her that we were only making a map of the country ... and that [we] were not taking anything out of the country and that we would not drive away the deer. When she understood that he thought that she would stop the storm and allow us to travel. I gave him a full sized plug of tobacco to take to her. He at once went up the hill in the face of the storm, and for a long time we heard him shouting a speech of some kind to her. Then he came down and said that he thought that she would let us travel the next day.* (Autobiography)

The party was indeed able to travel the next day, although the rain and snow continued all the rest of the way to the coast.

On September 18 they at last reached the mouth of the river at Neville Bay. Here they parted with their Inuit guides, "with great regret, for in the month that they had been with us we had all become excellent friends" (Tyrrell, *Report on the Doobaunt)*. Tyrrell recognized the coast from his 1893 trip and felt encouraged that they had arrived at this bay a full week earlier than he had the previous year. For the next 13 days they paddled southward toward Churchill, making good progress despite bad winds and wintry weather. A stop was made near the area where Tyrrell had been forced to cache the expedition's equipment and specimens on his previous desperate trip down the coast, but he was unable to locate the site before the changing tide forced him to abandon the search and re-launch the canoes. (The cache was found by Inuit hunters the next year and the equipment and rock samples were carried back to Churchill and shipped south, eventually arriving in Ottawa in November, 1895.)

On October 1 the party reached Churchill just as evening fell. This time their welcome was a warm one. Tyrrell and Ferguson were invited to stay with the Reverend and Mrs. Lofthouse at the mission house and the four other men had a good room with a stove at the Post. Tyrrell had arranged for additional provisions to be shipped up to the Post to await their arrival, so they were not dependent, as before, on the charity of the Hudson Bay Company. Their stay at Churchill proved to be a long one, for it was not until mid-November that the ice froze sufficiently to allow safe travel inland. Tyrrell passed the time plotting out his surveys, writing his summary report of the expedition to this point, and studying the journals kept by previous Hudson Bay officers stationed at Churchill. He also considered his route south.

> *At first I thought of taking the same route home that we had taken the previous year, namely over the coastal plain to York and thence to Oxford House &c. but afterwards it occurred to me that there was more country to explore, and that we then had a good opportunity to explore some of it.* (Autobiography)

The route which Tyrrell decided upon would take him directly south from Churchill to Split Lake on the Nelson River, then to Cross Lake, and down to Norway House. "It was a route especially interesting as being near the proposed line of the Hudson Bay Railway," Tyrrell explained in his report, "but there was no trail across the country from Churchill to Split Lake for the route had never been travelled."

Mr. Hawes, the Hudson Bay officer at Churchill opposed Tyrrell's choice of route, arguing that he should follow the well established trail from York Factory as he had done the previous year. Hawes refused to equip the expedition with dog teams or sleds, not wishing to risk their loss on an unknown route, and Tyrrell had to wait until he could obtain dogs and sleds from a Chipewyan party who came in to trade at the post in mid-November. Fortunately Tyrrell was also able to persuade James Westascot, his guide on the 1893 trip from Churchill to Oxford House, and Westascot's friend, David Dick, to accompany the party down to Cross Lake. Faced with Tyrrell's iron determination and the fact that he had already secured two sleds and dog teams, Hawes finally agreed to lend Tyrrell a sled and six dogs for a week to help transport the provisions. On November 28 the party left Churchill for Split Lake, taking with them a thousand pounds of provisions, four hundred for the men and six hundred for the dogs.

J.B. Tyrrell and R. Munro Ferguson on the steps of Government House, Winnipeg, January 1895, at the end of their journey south from Churchill by snowshoe and dog team.

The trip was rigorous. Since neither of Tyrrell's guides knew the way, Tyrrell took a compass bearing each morning, and James Westascot followed this as closely as the terrain would allow, while Tyrrell kept a rough survey of their progress during the day. They were soon travelling through dense forest, floundering in four feet of soft snow. Tyrrell was forced to send his men on snowshoes ahead to make a course for the sleds. Even then the dogs kept breaking through the beaten track and could not get enough purchase to pull the sleds so that it became necessary to harness the men to the sleds to help the dogs. Finally on December 9 they reached White Spruce Bluff (Strobus) Lake. Here, to their relief, they found a rough trail to Split Lake had been cut and blazed by Cree traders. Nearby, on Namaco (Myre) Lake, they were also able to hire a guide and another sled and dog team.

At last, on December 15, eighteen days after they left Churchill, they arrived at the Hudson Bay Post at Split Lake. From here a well-marked sledge road took the party on to Cross Lake Post by December 22. Two days later they reached Norway House, just in time to celebrate Christmas with the family of the Hudson Bay Company officer. From Norway House the party continued south along the shore of Lake Winnipeg, finally reaching Selkirk on January 7, 1895. In the six and a half months they had been absent, Tyrrell estimated that they had travelled 2900 miles: 1750 by canoe, 725 on snowshoes, and the remainder on foot or by dog team.

MANITOBA AND NORTHERN SASKATCHEWAN: 1895-1897

Once again Tyrrell returned to Ottawa as a celebrity. He and Ferguson had been given up as lost, their last communication having been received in July, and their arrival back in Ottawa was widely publicized. Dollie, who had spent the long months of her husband's absence at her parents' home in Saint John, New Brunswick, had never lost hope, but in December she was greatly distressed to receive in the mail a life insurance policy which Tyrrell had taken out without her knowledge, and had left with a colleague to forward to her should he not return. Obviously even Tyrrell's friends on the Survey had given up hope. It seemed miraculous when, on January 7, she received the long awaited telegram from Selkirk with the message that all were safe and well. By February she and Tyrrell were reunited and ensconced in a substantial rented house on Alexander Street, in a fashionable district of Ottawa near Rideau Hall.

Tyrrell's achievements and adventures guaranteed him a place in Ottawa social circles and he and Dollie continued to enjoy a satisfying round of social engagements during the winter and spring of 1895. As a Captain in the Governor General's Foot Guards, Tyrrell now commanded his own company (No. 5) and took part in the ceremonies on such formal occasions as the opening and closing of Parliament. Most of his time during the winter and spring, however, was spent at the Survey, completing his report on his

1892 expedition from Athabasca Lake to the Churchill River, and beginning his lengthy account of the Barren Lands trips. Here things were not as pleasant. Tyrrell had been surprised to find that Dr. Selwyn had retired in the fall and that G.M. Dawson had taken his place as Director. Already there was friction between the two men and in the coming years Tyrrell was to find his position at the Survey less and less satisfying.

His assignment for the summer of 1895 took him back to a relatively well known area north east of Lake Winnipeg, where he surveyed the Playgreen Lakes and the rivers flowing east out of Lake Winnipeg. There were few challenges and Tyrrell wrote later:

> *The work was rather monotonous. Nothing very interesting happened, the rocks ... were very similar throughout so that there did not seem to be any interesting geological problems to solve, except perhaps with regard to the movement of ice during the Glacial period ...* (Autobiography)

The following year was more rewarding, however. In January he and Dollie had their first child, Mary, and an album of family photographs testifies to Tyrrell's delight in his new daughter. Then in April 1896 Tyrrell was notified that the Royal Geographical Society had given him their prestigious Back Award (donated by the Arctic explorer, Sir George Back) in recognition of his two successful expeditions through the Barren Lands. In addition he published two articles on the glaciation of northern and central Canada in the *American journal of geology* and these contributed to his growing reputation as a geologist as well as an explorer.

In the summer of 1896 Tyrrell was sent again to Manitoba, this time to survey the area north of Lake Winnipeg and the Saskatchewan River, and west of the Nelson River. His travels were to take him just south of the present-day mining town of Thompson in the east, and close to the future site of Flin Flon in the west. This year the rocks were much more interesting and Tyrrell was able to identify extensive deposits of Huronian rock which he foresaw would yield valuable minerals when developed in the future. He began the season surveying the lakes and rivers in the vicinity of Cross Lake and Paint Lake, ascended the Burntwood River to Footprint River, and reached Nelson House on Footprint Lake by mid-August. Here, trying to photograph the interior of the mission house, Tyrrell severely injured his right hand when his flash exploded and burned one finger to the bone. Fortunately the wife of the missionary was a nurse. She insisted Tyrrell

remain at the mission for several weeks while she daily changed the dressings on his hand to prevent infection. Tyrrell spent his enforced leisure carrying out a survey of Footprint Lake, making his notes with his left hand.

The trip back to Cumberland House was a difficult one. Tyrrell's local guides were unable to wait for him at Nelson House while his hand healed, and when he was able to travel again, neither he nor his two remaining men from Selkirk (Roderick Thomas and John Harper, both of whom had been on the 1894 trip) were sure of the way down to The Pas. After following the Grass River to Herb Lake, where they tried unsuccessfully to find an old Indian portage to a route that would take them to the Saskatchewan River, they were forced to continue west to Reed Lake. Here they were fortunate in meeting some traders from whom they learned their actual whereabouts. Hearing from the traders that the route down to The Pas was a poor one, Tyrrell decided to make for Cumberland House instead. Arriving there safely at the end of September, the party then continued along the Saskatchewan to Fort à la Corne, where they left their canoe and hired a wagon to drive to Prince Albert and the train to the east.

Tyrrell recognized the potential of the country he had surveyed and foresaw its development as an important mining district in the years to come. Immediately on his return he began to write his report on the region's resources, but although he had completed the final draft by January 1897, it was not published until 1902, long after he had left the Survey. The spring of 1897, however, did see the publication of his report on his 1892 expedition, *Report on the country between Athabasca and Churchill River*, and by May Tyrrell had finished his report on the Barren Lands. He then made the unpleasant discovery that the maps, which he had prepared for publication using a scale of eight miles to one inch, were instead to be issued with a scale of twenty-five miles to the inch. Such a reduction meant that many of the geological and geographical features he had surveyed and plotted could not be shown. Furthermore, the maps were to be published without a formal title crediting Tyrrell as their author. His protests to Dawson were fruitless, and Tyrrell became increasingly bitter about his treatment by the Survey.

In the spring and summer of 1897 Tyrrell was much occupied with preparing for the August annual meeting of the British Association for the Advancement of Science which was to be held for the first time in Toronto. Not only was Tyrrell one of the secretaries of the Geographical Section, but he also delivered two important papers at the meeting: "The glaciation of North

Central Canada", and "Natural resources of the Barren Lands of Canada". The first paper put forward a major new theory of glaciation which Tyrrell had developed as a direct result of his observations of glacial striae in the Barren Lands. "I stated the existence and outlined the extent, age, growth, and decay of the Keewatin Glacier west of Hudson Bay" *(Autobiography)*. Tyrrell's theories about the origin of glaciation in central Canada contradicted the views of many contemporary geologists, including those of the Director of the Geological Survey, and were debated for a number of years before they were accepted as geological fact.

Although Tyrrell had requested permission to accompany the Association on a special excursion to the west coast, Dawson insisted that he return to Manitoba as soon as the meetings were over and continue his survey of the country lying between Lake Manitoba and Lake Winnipeg. Tyrrell spent the fall on this work, first surveying the region of Lake St. Martin and Fairford at the north end of Lake Manitoba, then returning to the settlement of St. Laurent at the south end of the lake, and investigating Shoal Lake and Swan Lake which lay to the east. At the end of his survey he travelled to Stonewall and examined a large government drainage project in St. Andrew's Marsh which was to become Winnipeg's chief water supply. From his surveys earlier in the season in the Lake St. Martin area, Tyrrell was able to identify the source of the springs that fed the marsh and also furnished the water for the artesian wells in the Winnipeg area.

> *The water is derived from the porous rocks that underlie the dry plateau extending north-northwestward from Dennis Lake to Lake St. Martin. The rain falling on that area immediately runs down into the porous rock and thence flows outwards at the lower level in numerous springs ... (Tyrrell,* Summary report, *1897)*

This was not the only discovery of the short season. Tyrrell had also located a large deposit of limestone at the Narrows on Lake Manitoba, which he realized would be an excellent source of stone for Winnipeg builders, and he had identified, on the east side of Lake St. Martin, further traces of the old shorelines of the post-glacial sea known as Lake Agassiz.

Back in Ottawa for the winter, Tyrrell continued working on his report on Lake Winnipeg and the surrounding area. His unhappiness over conditions at the Survey continued. Despite his hard work and well publicized discoveries, his salary remained at a lowly $1850 a year and he felt neglected and overlooked. To reduce his expenses he had been forced to resign from his

commission in the Foot Guards and to give up his house on Alexander Street for a more affordable one on Metcalfe Street. Hearing that his colleague on the Survey, R.G. McConnell, had been promoted to the rank and salary of Technical Officer, Tyrrell asked the Director for a similar promotion, warning Dawson that he could not continue on the Survey otherwise. Dawson promised to recommend the appointment to the Minister of the Interior, and Tyrrell agreed to remain with the Survey for the following season.

ON TO THE YUKON: 1898

In the spring of 1898 Tyrrell was assigned to make a survey of the southwest portion of the Yukon Territory. Gold had been discovered the previous year and the gold rush was now in full swing. Tyrrell relished the chance to be in on the excitement. He shared the trip up the coast to Skagway with his colleague, R.G. McConnell, who had been assigned to explore the vicinity of Dawson City and Big Salmon River. McConnell was bound for Dyea and the famous Chilcoot Pass, but Tyrrell disembarked at Skagway to cross over to Haines Mission and follow the less popular Dalton Trail up to the Yukon River.

When the steamer arrived at the Skagway wharf its passengers were forced to disembark immediately, at two in the morning, into a town already legendary for its lawlessness. Having learned that the North-West Mounted Police were maintaining an office in the town as a convenience and help to Canadians travelling on to the Yukon, Tyrrell prudently decided to seek them out and deposit his substantial government bankroll for safekeeping overnight at the office. He stopped a "pleasant-looking young man" to ask for directions. The youth offered to take him to the office, making a slight detour on the way into a gambling saloon to look up a friend. As Tyrrell waited outside he watched a group gambling at dice at a table near the door. One of the group called to Tyrrell to throw the dice for him to change a streak of bad luck. When Tyrrell's throw proved a winner, a sudden brawl broke out and he realized he was being manoeuvred into a fight staged solely to relieve him of his money. He extricated himself quickly and managed to make his own way to the Police office. There he was informed that his guide had been one of the notorious Soapy Smith's gang and that the saloon which he had entered was known locally as the "Slaughter House"

because of the many robberies and murders that had taken place there. Small wonder that Tyrrell wrote to Dollie the next day that Skagway was "a villainous hole."

Tyrrell was glad to leave immediately for Haines Mission and Pyramid Harbour where he began to assemble his outfit, consisting of three men in addition to himself, and fourteen packhorses to carry the expedition's supplies and equipment. The party set out on the trail for the Chilkat Pass in early June, but were forced to camp for a week beside the Tisku River, waiting for the snow on the summit to melt and new grass to appear so the horses could graze. Tyrrell and two of the men rode on to "Pleasant Camp", the new North-West Mounted Police post on the Kluhini River, where they stayed for several days and reconnoitred the trail conditions. The Mounties made them welcome and Tyrrell repaid the hospitality by naming the glacier opposite the camp the Jarvis Glacier, in honour of the officer in charge, Inspector Jarvis.

Pack train on the Dalton Trail, Yukon Territory, June 23, 1898.

Snow still lay in the gullies, but Tyrrell was able to take his party over the Pass by June 19. His were the first horses across the summit that summer. With the Chilkat Pass behind them, the party continued north to Neskatahin, one of the principal villages of the Southern Tutchone, where a large group had assembled to await the arrival of the salmon. By June 29 the party were at Dalton's Pony Express Camp. From here the trail ran along the Unahini River valley to Klukshu Lake and Lake Dezadeash, turning west along the Alsek River to the tiny settlement of Champagne. Here Tyrrell spent a day climbing Mount Kelvin with Paul Champagne, after whom the area was named, and then began his pace survey of the trail down the Nordenskiold River to the Lewes (Yukon) River and Five Finger Rapids, just north of the present town of Carmacks. Tyrrell established his camp a short distance below the rapids where there was good pasture for the horses, which were now in very poor condition. Hoping that the horses would recover with a few weeks rest, Tyrrell decided to leave his men in charge of the camp and continue on his own to investigate Dawson City and the gold fields.

The gold rush was at its height. The trails were crowded with hopeful travellers and the Yukon River was packed with boats of all descriptions bearing eager prospectors into the gold fields. In that one summer over seven thousand boats were estimated to have descended the Yukon River to Dawson.

> *I watched that great procession of boats going down the stream, and finally I hailed one of the larger ones, and asked the men in it if they would take an additional passenger. The answer came back "Can you steer?", and on my acknowledging that I could, they said that they would take me for ten dollars if I would steer their boat. Taking my bag of blankets with me I got aboard ... None of the men knew anything about how to handle a boat though they had brought it all the way down the river from Lake Bennett without mishap, except that they had hired river men to take it through Whitehorse Rapids for them.* (Autobiography)

On July 16 Tyrrell and his companions reached Dawson City and pushed their way in to the shore amid the hundreds of boats that had already arrived before them.

> *Here I said goodbye to my boating friends who had been very pleasant companions and had entertained me with stories of their travels and escapes in Europe. They thanked me very cordially for piloting their boat down the river ... One of the men, who appeared to be a leader among them, afterwards opened a clothing store in Dawson, which soon became the best clothing store in the city.* (Autobiography)

Tyrrell immediately encountered his colleague McConnell, who had arrived in his own canoe just the previous day, and a mutual friend, S.N.C. Treadgold, a young Englishman who was visiting the Klondike as a special correspondent for the *Mining journal* and had travelled out to the coast with Tyrrell. The three friends camped together on the banks of the river. The next day Tyrrell and Treadgold hired two men to help them carry their tents and provisions and started off from Dawson on foot to see for themselves the famous goldfields. They followed Bonanza Creek up to Discovery Claim near the mouth of Eldorado Creek and camped on Dick Low's claim, "destined to be the richest claim for its size in the Klondike." In the following days Tyrrell examined Low's claim and tried his hand at panning some of the gravel. His second pan, taken at random from the gravel, yielded "40½ oz. of coarse gold, the largest nugget weighing 1½ oz. Value $648, or, if gold had then been $35.00 an oz., $1100." Even $648 was over one third of Tyrrell's yearly wage. He was impressed. He was all the more impressed when, late one evening after he and Treadgold had retired to their tent, they heard sounds suggesting that Low was beginning to clean out the gold from his sluice boxes. Tyrrell and Treadgold came out of their tent to watch until the early hours of the next morning. It was

> *... the biggest cleanup that had been made in the Klondike up to that time. It filled six gold pans piled up with coarse gold, each panfull weighing from forty to fifty pounds ... the total assessed value of the cleanup $40,000.* (Autobiography)

Joe Irvine, the foreman on Dick Low's claim on Bonanza Creek, holding a pan containing 40½ oz. of gold, July 1898.

Tyrrell spent the following week looking at other claims on Bonanza Creek, Dominion Creek, and in the valley of Eldorado Creek. Everywhere he saw evidence of large gold deposits of incalculable richness. At French Gulch he picked up a nugget from the gravel which weighed 4½ ounces, worth $71.00 (the equivalent of two weeks of Tyrrell's salary on the Survey). When he arrived at the claim numbered "36 above" on Eldorado Creek, a huge nugget weighing twenty-four ounces had just been discovered and was being weighed by the owner — the second largest nugget to have been discovered in the Klondike. "It seemed hard to be poor", Tyrrell wrote to Dollie, "when gold was scattered through the earth in such abundance."

At the end of the week Tyrrell, now accompanied by Treadgold, who had volunteered to act as his assistant for the remainder of the season, took a small steamer back up the Yukon to his camp at Five Finger Rapids and resumed his survey of the southwestern part of the Yukon. Following Indian trails for the most part, the party turned west from the Nordenskiold River to ascend a tributary, which Tyrrell named the Wright River after his old University mentor, Professor Ramsay Wright. Eventually they reached the Nisling River valley and the Tutchone village of Aishihik where they hoped to find guides to a route to the unknown country lying to the west. The village was deserted, however, and the party was forced to continue without maps or guides. "Finding a foot-trail leading to the west, we decided to follow it," Tyrrell recalled in his *Autobiography*. The trail took them into the mountains and eventually to a branch of the Nisling River. The party then descended the river valley north for five days until they reached the White River valley.

Since it was now the end of August and the nights were bringing ground frosts, Tyrrell realized he must make for the Chilkat Mountains before snow came to block his return to the coast. Walking on foot to spare the few remaining horses as much as possible, the party returned up the Nisling River to Aishihik and followed the mountain ridge west of Aishihik Lake to Hutshi Lake. Here they were able to pick up the Dalton Trail. As their horses were now reduced to six from the original fourteen and these were weakening quickly, Tyrrell was relieved to meet an outfitter on the trail from whom he could hire three additional packhorses. With these the party was able to reach the North-West Mounted Police post at Pleasant Camp by September 21. As several more of the packhorses had become incapacitated, Inspector Jarvis lent Tyrrell another three to get the party back to Pyramid Harbour. They reached there on September 25 and travelled by steamer across to Skagway the following day.

Tyrrell remained in Skagway long enough to hear the tale of Soapy Smith's demise and to be reassured that some degree of law and order had been re-established in the town. He was also given a tour of the construction work under way on the White Pass and Yukon Railway. Then on the 29th he took the steamer for Vancouver and by October 12 was back in Ottawa, where he was described by the Ottawa *Citizen* as "bronzed and weather beaten, but looking as hard as nails."

Tyrrell was to need that toughness and determination which the *Citizen*'s reporter had detected. When he called on the Director of the Survey at the end of October to inquire about his promised promotion, Dawson informed him that it had been refused. Tyrrell felt certain that Dawson had not recommended the promotion and resigned his position on the spot, effective January 1, 1899.

> *Here I was, an Ottawa householder, forty years old, with a wife and child, with no employment, no savings of any consequence, and no financial backing ... I confess that I had some weeks of anxiety which my wife shared, but to outward seeming I was calm, perhaps a little defiant, and walked the streets of Ottawa with my shoulders a little straighter than before.* (Autobiography)

Tyrrell's luck held. Shortly after his resignation he met by chance an old college friend, Fred Wade, who had opened a law practice in the Klondike in 1897. On hearing that Tyrrell had resigned from the Survey, Wade suggested he return to the Klondike as a mining engineer and consultant. Tyrrell protested he lacked even the railway fare to get to the coast and Wade offered to lend him $2000 until he became established in Dawson. "My future was settled then and there and the Klondike was to be my home for the next seven years" *(Autobiography)*.

Tyrrell did not make his fortune in Dawson, although he was able to pay off Wade's loan within two years, but he did make a good living, both from the claims he purchased and worked himself, and from his practice as a mining consultant. By the end of 1905, however, he was tired of the long separations from his family that the Klondike life entailed. He moved to Toronto in 1906 and soon became well known as a mining consultant, serving as Canadian agent for the British Anglo-French Exploration Company from 1910 to 1930, and becoming active in the development of the mining industry in northern Ontario. In the 1920s he served as managing director of both Beaver Consolidated Mines and Lake Shore Mines, and in the 1930s became President of the Northern Canada Mining Corporation, but his greatest success lay in his development of the Kirkland Lake Gold Mine. In 1924 he became its managing director and he continued as President from 1931 until his retirement in 1955, two years before his death in 1957 at the age of 98.

Street scene in Dawson City, July 1898. The figure of a North-West Mounted Police officer is clearly visible.

Tyrrell's contributions to the development of Canadian mining were truly outstanding. He received many honours during his long life and published over eighty articles on geology and on mining. In addition, his interest in history, first awakened by his early studies of previous explorations in the west and by his discovery of David Thompson's papers, continued throughout his life. He compiled and edited four works published by the Champlain Society and wrote more than a score of articles on northern Canadian explorers and Hudson Bay men.

Tyrrell's love of the outdoor life continued long after he had left the Survey. He greatly enjoyed his active life as a mining consultant, making numerous trips each year into the north to examine mining prospects. After a heart attack in his seventies, he concentrated his energies on turning an abandoned farm on the banks of the Rouge River in Scarborough, purchased in 1921 at a sheriff's sale, into a productive and profitable apple orchard and a comfortable country retreat for his family. Given his life-long interest in natural history he would no doubt have been pleased to know that his orchard and farm would eventually become the site of the Metro Toronto Zoo.

There is much to celebrate in Tyrrell's amazingly long life which spanned almost a century, from 1858 to 1957. His seventeen adventurous years with the Survey, however, contained the ground work on which the rest of his career was built. In those years he made an astonishing number of significant discoveries and contributions in a variety of fields, including natural history and the history of human settlement, as well as geology and palaeontology. His early discoveries in the Alberta Badlands and his explorations in the Barren Lands remain outstanding achievements. One hundred years later, travellers in the northern wilderness retrace Tyrrell's routes along the Kazan and the Dubawnt Rivers with admiration, using his careful surveys and detailed notes as their guides. All over the Canadian north are rivers and lakes which Tyrrell was the first to survey, still bearing the names that he recorded on his maps. Although several lakes and at least three mountains have been named after Tyrrell, his achievements remained relatively unknown to most contemporary Canadians until the opening in 1985 of a major new museum in Drumheller, named the Royal Tyrrell Museum of Palaeontology, in honour of the discoveries in the Red Deer River valley made over one hundred years before.

A NOTE ON SOURCES

This exhibition and catalogue are based on the unpublished correspondence, notebooks, diaries, and other autobiographical materials in the J.B. Tyrrell Papers at the Thomas Fisher Rare Book Library. Much of the information in the catalogue about Tyrrell's explorations for the Geological Survey derives from typed transcripts of the original field notebooks in which he recorded his observations during each expedition. The Tyrrell Papers also include two volumes of original field notes made by James Tyrrell when he accompanied Tyrrell on his 1893 expedition through the Barren Lands. The description of the second Barren Lands trip in 1894 owes much to the vividly detailed diaries of Tyrrell's travelling companion, Robert Munro Ferguson. These diaries were donated to the Library by Ferguson's widow in 1959.

One of the most exciting portions of the J.B. Tyrrell Papers is the large collection of original photographs which document his work with the Geological Survey. Several hundred original prints exist for the period from 1886 to 1898, most of which have never been reproduced. Only a sampling could be selected for display. The modern enlargements, created by Philip Ower, the Library's photographer, especially for this exhibition, reveal a wealth of detail often hard to decipher in the small, faded originals.

The J.B. Tyrrell Papers also contain a large collection of maps, both in manuscript and published form. Among the manuscript maps are over 40 original maps drawn for Tyrrell by the Native Peoples in the areas in which he travelled from 1892 to 1895. Tyrrell collected these maps to aid in his own surveying and mapping but he was also often dependent on them for finding his way through country completely unknown to him and he could not have completed his Barren Lands expeditions without the maps he obtained from the Caribou Inuit. Relatively few nineteenth century maps by the Native Peoples of Canada have survived to the present day, and this collection is a very significant research resource. Again, only a small selection could be displayed in this exhibition.

Of particular interest to a biographer is Tyrrell's own lengthy, unpublished account of his life, written in the 1940s when he was already in his eighties. There are several overlapping versions and drafts of this account which have been collectively entitled *Autobiography*. Although written more than 40

years after many of the events described and sometimes inaccurate in detail, these recollections provide many insights into Tyrrell's life which are not apparent from his other writings.

The papers of J.B. Tyrrell's father, William Tyrrell, form a separate collection in the Fisher Rare Book Library and contain additional family material documenting J.B.'s early years.

The most important published material relating to Tyrrell's work for the Survey is contained in the Survey's own *Annual reports*. Tyrrell's detailed reports of his explorations usually appeared as sections of these *Annual reports*, but several lengthy reports, together with their maps, were published separately. Additional valuable information about Tyrrell's expeditions can sometimes be found in the Director's "Summary report" of the previous year's work, published at the beginning of each *Annual report*. Preparation of the detailed reports often took several winters to complete and publication was frequently delayed until several years after the work described had taken place. Thus several of Tyrrell's reports were published after he had left the Survey.

In addition to the published materials cited in the catalogue, the following works were of particular help in preparing this exhibition: W.J. Loudon, *A Canadian geologist* (Toronto: Macmillan, 1930); Mary Edith Tyrrell, *I was there* (Toronto: Ryerson Press, 1938); Morris Zaslow, *Reading the rocks; the story of the Geological Survey of Canada, 1842-1972* (Toronto: Macmillan, 1975); Alex Inglis, *Northern vagabond; the life and career of J.B. Tyrrell* (Toronto: McClelland and Stewart, 1978); Fred Gaskin, "Retracing Tyrrell's trip into the Barren Lands" in *Canadian geographic*, Dec. 1976/Jan. 1977; David F. Pelly and Andrew Stewart, "The Kazan; retracing ancient footsteps through the Arctic Barrens" in *Canadian geographic*, Aug./Sept. 1989; *The Kazan; journey into an emerging land*, edited by David F. Pelly and Christopher C. Hanks (Yellowknife: Outcrop, 1991).

The Handbook of North American Indians (Washington: Smithsonian Institution, 1978-) was consulted for information on the Native Peoples whom Tyrrell met and worked with on his expeditions. This catalogue cites many of Tyrrell's original photograph captions in which he followed the practice of his time in using the terms "Eskimo" and "Chipewyan" for those peoples now known as the Caribou Inuit and the Dene. The spelling of place names follows the usage of *The Gazetteer of Canada* (Ottawa, 1952-).

Case 1. Early Years: 1858-1883

Photograph of J.B. Tyrrell's father, William Tyrrell, aged 76. Dated 1893.Original print.

Photograph of J.B. Tyrrell's mother, Elizabeth Burr Tyrrell, aged 60. Dated 1885. Original print.

Photograph of the Tyrrell family home in Weston, Ont., in 1886. Original print.

William Tyrrell built this house in 1864 and it remained the family home until his death in 1904. The house is still standing, largely unchanged, on the corner of King Street and Rosemount Avenue in Weston, and is one of the town's few remaining nineteenth-century buildings.

Photograph of J.B. Tyrrell in 1875, aged 16. Original print.

Photograph of the General Committee of the University College Literary and Scientific Society, 1878-79. Original print.

J.B. Tyrrell stands third from the right in the second row.

Testimonial for J.B. Tyrrell written by Professor Edward Chapman, School of Practical Science, University of Toronto, June 8, 1880, attesting to Tyrrell's first class standing and stating that he "has always stood high in the esteem of the professors."

Letter from A.R.C. Selwyn, Director, Geological and Natural History Survey of Canada, to William Tyrrell, Weston, Aug. 5, 1881, informing him that his son, J.B. Tyrrell, has been appointed to the Survey "on probation" at a salary of $500 a year.

Photograph by Topley, Ottawa, of J.B. Tyrrell in the 1880s. Original print.

Letter from A.R.C. Selwyn, Ottawa, to J.B. Tyrrell, Dec. 14, 1881, complimenting him on his work at the Survey and promising to recommend that his salary be increased to $700 a year.

Clippings from the Ottawa *Daily citizen*, 1882, describing the inauguration of the Ottawa Microscopical Society in October 1882, and the lecture on insect parasites which J.B. Tyrrell delivered to the Society in December.

J.B. Tyrrell. "On some Canadian *Ectoparasiti Sarcopti*," Ottawa Field Naturalists' Club, *Transactions*, v. 1, 1879-83.

Tyrrell's first publication. He had delivered this lecture to the Club in February 1882.

Letter from J.B. Tyrrell, Ottawa, to his father, William Tyrrell, April 16, 1883, relating the news that he had been appointed assistant to Dr. G.M. Dawson, a senior member of the Survey, and would accompany him out west in the coming season.

J.B. Tyrrell. *Notebook*. 1883. Open at the entry for July 6, the first day of his pace survey of the Crows Nest Pass.

Photograph by G.M. Dawson: "Camp at Horse Creek, Columbia Valley, Sept. 20 [1883]" Modern print.

Photograph by G.M. Dawson: "Kicking Horse River at Golden City, looking east, Sept. 22 [1883]" Modern print.

Dawson had been one of the first on the Survey to use a camera to document his findings. On his 1883 trip he took over a hundred photographs. Tyrrell's diary records many of these occasions and frequently mentions helping Dawson with his photography. Tyrrell began using a camera himself on his 1886 expedition.

Canada. Dept. of the Interior. *Annual report ... for the year 1883. Part III.* Ottawa, 1884.

Part III contains the report by Dr. A.R.C. Selwyn describing the explorations and surveys carried out by the Geological and Natural History Survey of Canada in the 1883 season. Dawson's expedition to the Rocky Mountains is summarized and Selwyn notes that Dawson located extensive coal deposits in the mountains and that the party brought back a large collection of plants, "chiefly due to the exertions of Mr. Tyrrell."

Case 2. Dinosaurs and Coal: Alberta 1884-1886

J.B. Tyrrell. *Field notebook*. 1884. Typed transcript, open at the entry for August 12, 1884, describing his discovery of the skull of a large dinosaur, embedded in the bank above Kneehills Creek.

ITEMS DISPLAYED

Letter from J.B. Tyrrell to his father, William Tyrrell, August 13, 1884, recounting his adventures on the survey and describing his discovery of dinosaur remains on the previous day.

"While down in the bottom of this last coulee I found a head of one of the large extinct reptiles that used to roam over the country, the first as far as I know that has been found in any part of Canada."

Photograph of the dinosaur skull found by Tyrrell in 1884. Modern print.

The skull belongs to the species now known as *Albertosaurus sarcophagus* and was the first skull of this species to be discovered.

Photograph of the area in the Red Deer River valley where Tyrrell first found dinosaur remains. Modern print.

Letter from E.D. Cope, Philadelphia, to J.B. Tyrrell, May 3, 1887, discussing the dinosaur skull found by Tyrrell in 1884.

Cope, who was recognized as the leading expert of his day on the dinosaurs of western America, provisionally identified the skull as a previously unknown species of the genus *Laelaps*. Cope died before he could complete his study, however, and the skull was later identified as belonging to *Dryptosaurus incrassatus*. In 1905 it was assigned to a new genus and species, set up by the palaeontologist H.F. Osborn, and named, in honour of the province where the first remains were found, *Albertosaurus sarcophagus*.

A.R.C. Selwyn. *Summary report of the operations of the Geological and Natural History Survey to 31st December, 1886, being Part III, Annual report of the Department of the Interior, 1886*. Ottawa, 1887.

Includes Tyrrell's summary of his 1886 expedition in Alberta, in which he describes the discovery of extensive coal seams in the Red Deer River and Kneehills Creek area.

Photograph: "Sunday Camp by small lake, N.W.T., August 1, 1886." Modern print.

Photograph: "Ruins of Rocky Mountain House, N.W.T., on the north bank of the Saskatchewan River. Sept. 18, 1886." Modern print.

Photograph: "Our Party in 1886." Modern print.

Left to right:
J.B. Tyrrell, D.B. Dowling, E. Dickson, J. Robison, T. Hastings.

J.B. Tyrrell. *Report on a part of Northern Alberta and portions of adjacent districts of Assiniboia and Saskatchewan.* Contained in Geological and Natural History Survey of Canada, *Annual report (new series), 1886*, v. 2. Montreal, 1887.

Tyrrell's lengthy report covers the work of three expeditions, 1884-1886. Appendices contains a list of the fossils collected and a list of Cree and Stoney place names. Two of Tyrrell's photographs are used as illustrations.

Case 3. Manitoba Explorations, 1887-1891

J.B. Tyrrell. *Topographical map of Duck and Riding Mountains in north-western Manitoba.* By J.B. Tyrrell ... assisted by D.B. Dowling. [Montreal] 1888.

and *Notes to accompany a preliminary map of the Duck and Riding Mountains in north-western Manitoba.* Montreal, 1888. (Geological Survey of Canada. *Annual report (new series), 1887*, v. 3)

Map and report documenting the explorations carried out by Tyrrell and his assistant, D.B. Dowling, during the 1887 season.

Photograph: "Our party after lunch. Aug. 31, 1887." Modern print.

Photograph: "Saulteaux family from the Upper Assiniboine River. Oct. 16, 1887." Modern print.

Photographs: "Fort Pelly on the Assiniboine River. Nov. 1, 1887." Modern prints.

Two photographs taken to create a panoramic view of the fort. Tyrrell was proud of this composite shot, calling it "probably the last photograph taken of the fort and perhaps the only good photograph ever taken of such a stockaded H.B. fort."

J.B. Tyrrell. "Gypsum deposits in northern Manitoba". *Canadian record of science*, v. 3, no. 6 (April 1889).

Describes the major gypsum deposits north of Lake St. Martin, Manitoba, discovered by Tyrrell during his 1888 expedition.

Saulteaux family from the Upper Assiniboine River, Manitoba, October 16, 1887.

Menu card for the complimentary dinner held in J.B. Tyrrell's honour at the Ottawa Club, Dec. 6, 1888.

The dinner was held to celebrate Tyrrell's return to Ottawa after his recovery from severe typhoid fever, contracted during his summer expedition to northern Manitoba.

J.B. Tyrrell. *A brief narrative of the journeys of David Thompson in north-western America.* Toronto, 1888.

Tyrrell's first article on David Thompson. Read before the Canadian Institute, March 3, 1888.

J.B. Tyrrell. "The cretaceous of Manitoba." *American journal of science*, v. 40 (Sept. 1890).

Based on geological observations made during Tyrrell's 1887 and 1889 expeditions.

J.B. Tyrrell. "Pleistocene of the Winnipeg Basin."*American geologist*, v. 7 (July 1891).

Based on geological observations made during Tyrrell's 1889 and 1890 expeditions.

J.B. Tyrrell. *Post-tertiary deposits of Manitoba and the adjoining territories of northwestern Canada.* Geological Society of America, *Bulletin*, v. 1 (Apr. 1890).

Originally written and submitted to the University of Toronto as an M.A. thesis. Tyrrell was awarded the degree in the spring of 1889.

J.B. Tyrrell. *Geological map of north-western Manitoba and portions of the Districts of Assiniboia and Saskatchewan.* By J.B. Tyrrell ... assisted by D.B. Dowling. [Ottawa] 1891.

and *Report on north-western Manitoba with portions of the adjacent districts of Assiniboia and Saskatchewan.* Ottawa, 1892. (Geological Survey of Canada. *Annual report (new series), 1890-91*, v. 5).

Map and report documenting the explorations carried out by Tyrrell and his assistant, D.B. Dowling, in 1887 and 1888. Portions of the work undertaken in the 1889 and 1890 seasons are also covered.

J.B. Tyrrell. *Report on the east shore of Lake Winnipeg and adjacent parts of Manitoba and Keewatin.* From notes and surveys by J. Burr Tyrrell ... compiled by D.B. Dowling. Ottawa, 1900. (Geological Survey of Canada. *Annual report (new series), 1898*, v. 11).

Describes the surveys made by Tyrrell and Dowling in 1890 and 1891. Also includes material from the survey Tyrrell carried out in 1895. Published after Tyrrell had left the Geological Survey, the *Report* was compiled by Dowling from Tyrrell's notebooks and his partially written report.

Photograph: "Thickfoot's tent at mouth of Loon Creek, July 24 [1891]" Modern print.

"Thickfoot" was a Saulteaux hunter who was camping on the shore of Lake Winnipeg. He drew a map for Tyrrell showing the course of Loon Creek and also lent him a small skiff so he could ascend it to its source.

Case 4: Lake Athabasca Region, 1892

Photograph by Topley, Ottawa, of J.B. Tyrrell aged 34. Dated 1892. Original print.

Letter from A.R.C. Selwyn, to J.B. Tyrrell, Ottawa, June 6, 1892, authorizing him to draw on the Survey account up to a total of $4320 for expedition expenses.

ITEMS DISPLAYED

"Map of a canoe route from the mouth of Rock or Green Mt. River to the Great Indian River flowing to the sea known only to the Esquimos. Made by Andrew." [July 30, 1892]

Pencil on several sheets of Geological Survey Department stationery. Title, notes, and place names in J.B. Tyrrell's hand. Andrew was Chipewyan, from Fond du Lac.

Photograph: "Chipewyan tent, Fond du Lac, Lake Athabasca. July 30, 1892." Original print.

"Ethingo's map of Wolverine River and the canoe route northwards from Black Lake to the Barren Grounds and Active Man Lake, which empties northward into a great river that flows north to the sea." [August 4, 1892]

Linen tracing in ink by J.B. Tyrrell of original map. Title, notes and place names in J.B. Tyrrell's hand. Ethingo Campbell was Chipewyan, from Ile-à-la-Crosse. He told Tyrrell of a journey he had made to Dubawnt Lake and drew a map of the route. Tyrrell followed this route into the Barren Lands in 1893.

J.B. Tyrrell. *Field notebook.* 1892. Typed transcript, open at the entry for August 8, recording Tyrrell's conversation with Gabriel Thieelzoa, a Chipewyan from Reindeer Lake.

"Gabriel Thi-eel-zoa's map of the route from Reindeer Lake to Kas-ba-tua or White Partridge Lake and thence by White Partridge River to the sea." [Aug. 8, 1892]

Pencil on brown paper. Title, notes and place names in J.B. Tyrrell's hand.

J.B. Tyrrell. *Report on the country between Athabasca Lake and Churchill River, with notes on two routes travelled between the Churchill and Saskatchewan Rivers.* Ottawa, 1896. (Geological Survey of Canada. *Annual report (new series), 1895*, v. 8).

Describes in detail the country traversed by Tyrrell's expedition of 1892. The frontispiece shows a view of White Spruce Falls, on the Geikie River, based on one of Tyrrell's photographs.

J.B. Tyrrell. *Map of the country between Lake Athabasca and Churchill River. To accompany Report of J. Burr Tyrrell.* Ottawa, 1897.

Based on surveys carried out by Tyrrell and D.B. Dowling in 1892 but also incorporating information from Tyrrell's expeditions of 1893 and 1894.

Draft letter by J.B. Tyrrell proposing an expedition to explore the Barren Lands, 1893.

Tyrrell outlines his proposed route across the Barren Lands to Hudson Bay, based on maps and information gathered on his 1892 expedition. He suggests that great mineral wealth may be discovered in the area "which has never been entered by a white man since Samuel Hearne crossed it with a wandering band of Indians in 1770."

Cases 5 & 6: Across the Barren Lands, 1893

Letter from the Peterborough Canoe Co. Ltd., Peterborough, to J.B. Tyrrell, Ottawa, Mar. 7, 1893, confirming his order of two canoes.

Letter from James Flett, Prince Albert, to J.B. Tyrrell, Ottawa, May 3, 1893, recommending John Flett for Tyrrell's Barren Lands expedition.

Letter from P.M. McKenzie, Hudson's Bay House, Montreal, to J.B. Tyrrell, May 9, 1893, arranging for payments to be made to the families of three Iroquois brothers from Caughnawaga: Pierre, Louis, and Michel French, whom Tyrrell had hired as canoeists for his expedition.

Photograph: "Five voyageurs of our party at Fort Chippewyan. June 20, 1893." Modern print.

From left to right: Pierre French, John Flett, Jim Corrigal, Michel French, Louis French.

Photograph: "Fort Chippewyan from the east. June 18, 1893." Modern print. Shows the expedition's tents in foreground.

"Map of route from Pelican Lake to Lac La Hache by Jim John." [July 17, 1893]

Pencil on three sheets of lined paper. Title and place names in J.B. Tyrrell's hand. Jim John was one of a party of Chipewyan met by Tyrrell on Selwyn Lake. "From these Indians we gathered some interesting information about the great length and difficulties of the river, that it was full of Eskimos who would eat us, etc." *(Field notebook,* 1893)

James W. Tyrrell. *Field notebook.* 1893. Open at entry for July 19, 1893, showing a survey sketch of Pelican Lake.

J.B. Tyrrell. *Field notebook.* 1893. Typed transcript, open at entry for July 31, describing an immense herd of caribou on Carey Lake.

Photograph: "Caribou on the shore of Carey Lake. July 30 [1893]" Modern print.

Photograph: "Drying caribou meat. July 31 [1893]" Modern print.

Photograph: "Rapid on Doobaunt River ... running with half load. Aug. 3, 1893." Modern print.

Photograph: "Camp on shore of Doobaunt Lake. Aug. 12, 1893." Modern print.

Photograph: "Eskimo camp at the mouth of Telzoa [Dubawnt] River. Sept. 2, 1893." Modern print.

Photograph: "Eskimos at the head of Baker Lake. Sept. 2, 1893." Modern print.

James W. Tyrrell. *Field notebook.* 1893. Open at entry for Sept. 5 with survey sketch of Baker Lake.

Photograph: "Exploring Rankin Inlet, Hudson Bay. Sept. 15, 1893." Modern print. Shows James Tyrrell seated in the middle of the canoe, bent over his notebook, recording his observations.

J.B. Tyrrell. Sketch map of the coast of Hudson Bay. 1893.

Photograph: "Camp on the west shore of Hudson Bay. Oct. 5, 1893." Modern print.

Photograph: "Ice on the shore of Hudson Bay Oct. 6, 1893" Modern print.

Photograph: "Party at Cache Camp, W. shore, Hudson Bay. Oct. 6, 1893." Modern print.

Tyrrell decided to cache most of the equipment and one of the canoes at this camp in order to travel down the coast as quickly as possible, with four men paddling in each canoe, in a desperate attempt to reach Churchill before the onset of winter.

Letter from F.M. Matheson, Churchill, to J.B. Tyrrell, North River, 20 miles from Churchill. Oct. 17, 1893.

The rescue party for the expedition brought this letter addressed to Tyrrell from the Hudson Bay officer at Churchill, outlining exactly what supplies were being sent to the camp and warning him not to leave anything behind as it would not be convenient to return.

Photograph: "Expedition party at Churchill. Oct. 26, 1893." Modern print.

Telegram from J.B. Tyrrell, West Selkirk, Man., to Miss Edith Carey, Ottawa. Jan. 1, 1894.

"Happy new year all well telegraph & write Manitoba Hotel Winnipeg."

Newspaper clippings from the *Toronto world* (Jan. 9, 1894); the *Daily citizen*, Ottawa (Jan. 11, 1894); and the *Illustrated Buffalo express* (Jan. 20, 1894).

Samples of the press coverage that the Tyrrell brothers received on their dramatic return from the Barren Lands.

J.B. Tyrrell. "An expedition through the Barren Lands of northern Canada." In the *Geographical journal*, v. 4, no. 5, Nov. 1894.

A short account of Tyrrell's 1892 explorations and his 1893 expedition across the Barren Lands, with a map showing his routes.

Photograph: J.B. Tyrrell in Inuit clothing with his snowshoes. 1894. Modern print. A posed studio composition.

James W. Tyrrell. *Across the sub-arctics of Canada.* Toronto: William Briggs, 1897.

James Tyrrell's dramatic account of the expedition across the Barren Lands with his brother. The book is illustrated with photographs from the expedition and with drawings by Arthur Heming.

Cases 7 & 8. Down the Kazan and the Ferguson, 1894

Invitation to the wedding of Mary Edith Carey and Joseph Burr Tyrrell, Feb. 14, 1894.

Photograph by Topley, Ottawa, of Mary Edith Carey (Dollie) in her wedding dress. Dated Feb. 1894. Original print.

Photograph by Geagan & Smith, Niagara Falls, of J.B. and Mary Edith (Dollie) Tyrrell at Niagara Falls. Dated 1894. Original tintype.

Letter from David Erskine, Government House, Ottawa, to J.B. Tyrrell, March 10, 1894, inviting him, on behalf of the Governor General, to give a lecture to the Haddo Club.

Invitations to Mr. & Mrs. Tyrrell to functions held at Government House, Ottawa, by the Countess of Aberdeen. 1894.

Letter from the Governor General, Lord Aberdeen, Government House, Ottawa, to J.B. Tyrrell, June 13, 1894, wishing him *bon voyage* as he and Robert Munro Ferguson depart for the Barren Lands.

Letter from A.R.C. Selwyn, to J.B. Tyrrell, Ottawa, June 11, 1894, authorizing Tyrrell to issue drafts on the Survey account for expedition expenses up to a total of $1300.

Such a low figure indicates that Ferguson and perhaps Lord Aberdeen must have contributed generously to cover the expedition's costs.

Photograph: "Hauling a birch canoe up a rapid on Sturgeon River. July 6 [1894]" Modern print.

Photograph: "Our party on the shores of Theitaya Lake. July 30 [1894]" Modern print. Ferguson stands on the extreme left.

Photograph: "Rapid in Thlewiaza River. July 31 [1894]" Modern print. Ferguson is standing on the bank, wearing a hat with mosquito netting.

ITEMS DISPLAYED

Photograph: "Our two Chippewyan Indians [Thebayzie and Xavierseese] near Ennadai Lake. From Kazan River. Aug. 10 [1894]" Modern print.

Tyrrell had hired Thebayzie and Xavierseese at Fort Du Brochet on Reindeer Lake to guide the party to Ennadai Lake.

"Map by Thebayzie ... Ennadai Lake." Aug. 9, 1894.

Pencil on brown paper. Title and place names in J.B. Tyrrell's hand. Thebayzie was a Chipewyan guide engaged at Du Brochet Post.

"Map of Kazan River by an Eskimo (Hallo)." [August 18, 1894]

Pencil on brown paper. Title and place names in J.B. Tyrrell's hand. "Hallo" was one of the Caribou Inuit whom Tyrrell met as his expedition descended the Kazan River. "Hallo" accompanied the expedition down the river for a few days and drew two maps for Tyrrell.

Photograph: "Eskimo camp on Barren Lands. Aug. 18 [1894]" Modern print. Shows "Hallo's" camp on the Kazan River.

Robert Munro Ferguson. *Diary*. 1894. Open at the entry for August 20, 1894, in which he describes "Hallo's" camp on the Kazan River.

Photograph: "Eskimo kyacks beside Mr. Tyrrell's canoe on Angikuni Lake. Aug. 21 [1894]" Modern print.

Photograph: "Eskimo woman and children at camp below Angikuni Lake. Aug. 25 [1894]" Modern print.

Photograph: "Eskimos in kyacks on the Kazan River. Aug. 25 [1894]" Modern print.

Letter from J.B. Tyrrell to Dollie Tyrrell. Aug. 22, 1894.

"We are now about where you will see Yath-kyed Lake marked on the map, and the survey is going on very nicely. We are right in the midst of the Eskimos. There were twenty one kyacks around us yesterday at one time ... As soon as winter sets in one of the men here, named Anuliak, is going to Reindeer Lake to trade and I am sending this note on by him to tell you we are well and delayed in the north rather longer than we had expected."

The letter was delivered to the Hudson Bay Post as promised and slowly made its way out of the north to reach Dollie in Ottawa on March 5, 1895.

"Map of Kazan River by Pasamut." Aug. 23, 1894.

Pencil on brown paper. Title and place names in J.B. Tyrrell's hand. Pasamut was an Inuit trader who had travelled widely across the Barren Lands. Tyrrell and Ferguson visited his camp on the Kazan River to obtain information about the quickest route to the coast. Pasamut drew this map for them, confirming that the Kazan flowed north to Chesterfield Inlet and showing an alternate route eastward through several lakes and down a large river to Neville's Bay on the coast. The party successfully followed this route to Hudson Bay.

Photograph: "Portage on the Kazan River, above Yath-Kyed Lake. Aug. 28 [1894]" Modern print.

Photograph: "Iglo on the beach near Churchill. Nov. 20 [1894]" Modern print.

Photograph: "Our camp near the head of Owl River. N.W.T. Dec. 5 [1894]" Modern print.

Photograph: "Our party at Split Lake. Dec. 16 [1894]" Modern print.

Photograph: J.B. Tyrrell and R. Munro Ferguson on the steps of Government House, Winnipeg. Jan. 1895. Modern print.

Telegram from J.B. Tyrrell, West Selkirk, to Mrs. Tyrrell, Saint John, N.B. January 7, 1895.

"Happy New Year snowshoes from Churchill all well write Weston."

J.B. Tyrrell. *Report on the Doobaunt, Kazan and Ferguson Rivers and the north-west coast of Hudson Bay and on two overland routes from Hudson Bay to Lake Winnipeg.* Ottawa, 1897. (Geological Survey of Canada, *Annual report (new series), 1895*, v. 9).

and *Map of Doobaunt and Kazan Rivers and northwest coast of Hudson Bay.* Ottawa: Geological Survey of Canada, 1896.

Tyrrell's detailed account and map of his two expeditions across the Barren Lands in 1893 and 1894. Illustrated with numerous photographs from the two expeditions. Appendices include a list of Chipewyan place

names, a vocabulary of words used by the Caribou Inuit, and a list of plants collected in 1893 by James Tyrrell.

MacLean-Hunter Reading Room
Case 1: Manitoba and Northern Saskatchewan, 1895-1897

Extract from the *Ottawa naturalist*, v. 10, no. 3, June, 1896, announcing that the Royal Geographical Society of London has awarded the Back Grant to J.B. Tyrrell "in recognition of the geographical work done by him in the Barren Lands west of Hudson's Bay."

J.B. Tyrrell. *Field notebook.* 1896. Typed transcript, open at entry for September 23, 1896, describing the party's difficulties finding a route down from Nelson House to The Pas.

J.B. Tyrrell. *Report on explorations in the north-eastern portion of the District of Saskatchewan and adjacent parts of the District of Keewatin.* Ottawa, 1902. (Geological Survey of Canada. *Annual report (new series), 1900*, v. 13)

Tyrrell's report on his 1896 expedition. Illustrated with his photographs.

Photograph by A.E. Barlow: "Eozoon locality, Petite Nation, Que. May 15, 1897." Modern print.

From left to right, as identified by Tyrrell: Ellis, Selwyn, McInnes, Tyrrell (seated on the rock, reading), Ingalls, Brock, Fletcher, Adams.

Records an outing by members of the Survey to examine puzzling rock formations which had been identified as fossil remains.

J.B. Tyrrell. *Field notebook.* 1897. Typed transcript, open at entry for Sept. 10, describing Lake St. Martin, Manitoba.

Photograph: "Tracking the boat up the Fairford River, Man. [1897]" Modern print.

Photograph: "Cook kneading bannocks, Lake St. Martin, Sept. 12/97." Modern print.

Photograph: "Frank Lundy's house, Lundyville, Man. Oct. [1897]" Modern print.

Photograph: "Polander's house, north of Pleasant Home, Man. Nov. 1, 1897." Modern print.

Case 2: The Klondike, 1898

Letter from J.B. Tyrrell, Skagway, to Dollie Tyrrell, May 27, 1898, describing the town as a "villainous hole."

Photograph: "Our camp on the Chilkat River. May 28, 1898." Modern print.

Photograph: "Ravine filled with snow near summit, Dalton Trail. [1898]" Modern print.

Photograph: "Horses fording Chilkat River near its source. [June, 1898]" Modern print.

J.B. Tyrrell. *Field notebook.* 1898. Typed transcript, open at entry for June 23, describing the Alsek River.

J.B. Tyrrell. "Rocks of the Dalton Trail, collected by J.B. Tyrrell." Typescript. 1898.

Photograph: "Pack train, climbing up trail out of gulch. June 23 [1898]" Modern print.

Photograph: "Tents on the waterfront [Dawson City]. July 1898." Modern print.

Photograph: "Front St., Dawson, at slough. [July] 1898." Modern print.

J.B. Tyrrell. *Field notebook.* 1898. Typed transcript, open at entry for July 18, 1898, describing his examination of claims along Bonanza Creek.

Photograph: "Pan containing 40½ oz. of gold, value $650.00, on Mr. Low's claim. Bonanza Creek, July 1898." Modern print.

Photograph: "Rocking gold [on hill below Skookum Gulch] July 27, 1898." Modern print.

Photograph: "Saloon in Dawson City. [July 1898]" Modern print.

Photograph: "Gold Commissioner's Office, Dawson, 1898." Modern print. Also shows the Canadian Bank of Commerce building.

Photograph: "Tents on Police Reserve, Dawson City. [July 1898]" Modern print.

Photograph: "Street in Dawson, 1898." Modern print.

Letter from J.B. Tyrrell, Dawson City, to Dollie Tyrrell, July 29, 1898, describing the richness of the Klondike claims he has seen.

"It seemed hard to be poor when gold was scattered through the earth in such abundance."

Photograph: "Indians on Nisling River. Aug. 27 [1898]" Modern print.

Extract from the *Times*, London, Dec. 5, 1898, announcing J.B. Tyrrell's resignation from the Geological Survey of Canada to engage in business as a mining engineer in the Klondike.

Newspaper clipping from the Toronto *Globe*, Dec. 22, 1898, announcing a lecture by J.B. Tyrrell to the Canadian Institute on "Life among Klondikers ... wealth of El Dorado."

Standing Case: Original Photographs from the Barren Lands, 1893-1894

Hawkeye camera. Tyrrell used this camera, or one similar to it, on his 1893 Barren Lands expedition.

Letter from J.J. Topley of the Topley Studio, Ottawa, to J.B. Tyrrell, May 15, 1893, outlining the camera equipment Tyrrell has ordered for his expedition, including a Hawkeye camera and roll films.

ITEMS DISPLAYED

Photograph: "Indian [Cree] camp at Fort McMurray. June 9, 1893."

Leaf from J.B. Tyrrell's photograph album, 1893. Four original photographs showing expedition at Cairn Hill, Carey Lake. Aug. 1, 1893.

Photograph: "Snow lying at foot of a cliff of red conglomerate, Doobaunt Lake. Aug. 14, 1893." Shows Tyrrell in canoe.

Photograph: "Eskimo cairn at the east end of Aberdeen Lake. Aug. 28, 1893." François Maurice stands beside the cairn.

Photograph: "Eskimos at head of Baker Lake. Sept. 2, 1893."

Photograph: "Rapid in Thlewiaza River. July 31 [1894]"

Lantern slide: "Ahyout and Kakkuk, our two Eskimo guides at camp on Angikuni Lake. Aug. 24 [1894]" The two Inuit are holding between them the head of a caribou with magnificent antlers, which had been shot by J.B. Tyrrell.

Lantern slide: "Eskimo woman and children at camp below Angikuni Lake. Aug. 25 [1894]"

Lantern slide: "Chippewyan Indians at Churchill. Nov. 20, [1894]"

Photograph: "James Westascot. Dec. 17 [1894]" Photographed at Split Lake Hudson Bay Post. Westascot stands on the right.

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